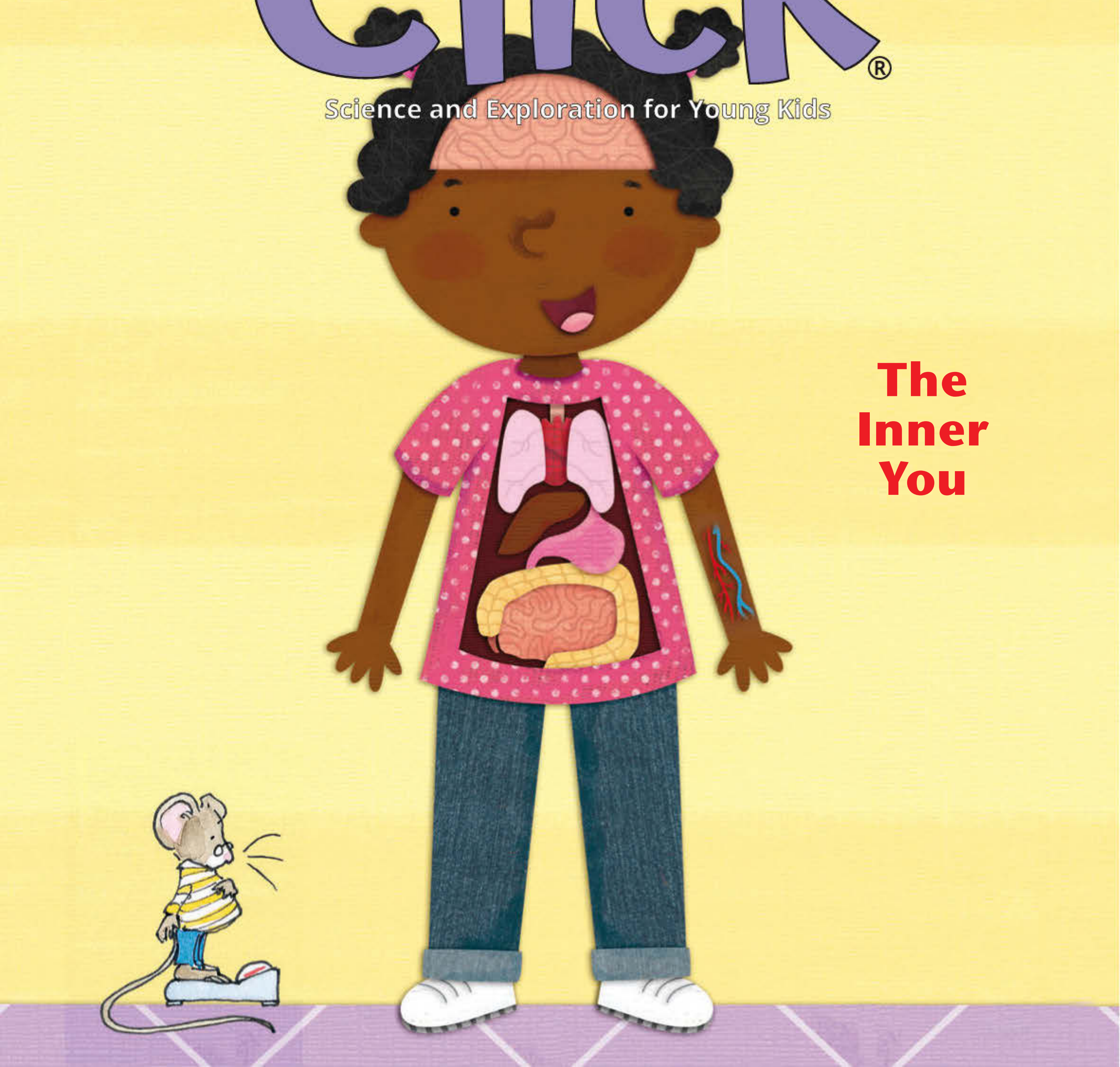
Cricket®

Click®

Science and Exploration for Young Kids



The Inner You

VISIT…

LANZAROTE
Caliente.COM

Click & the Kids

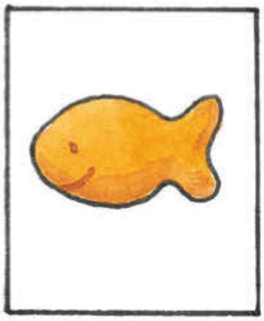
story and art by Meg McLean

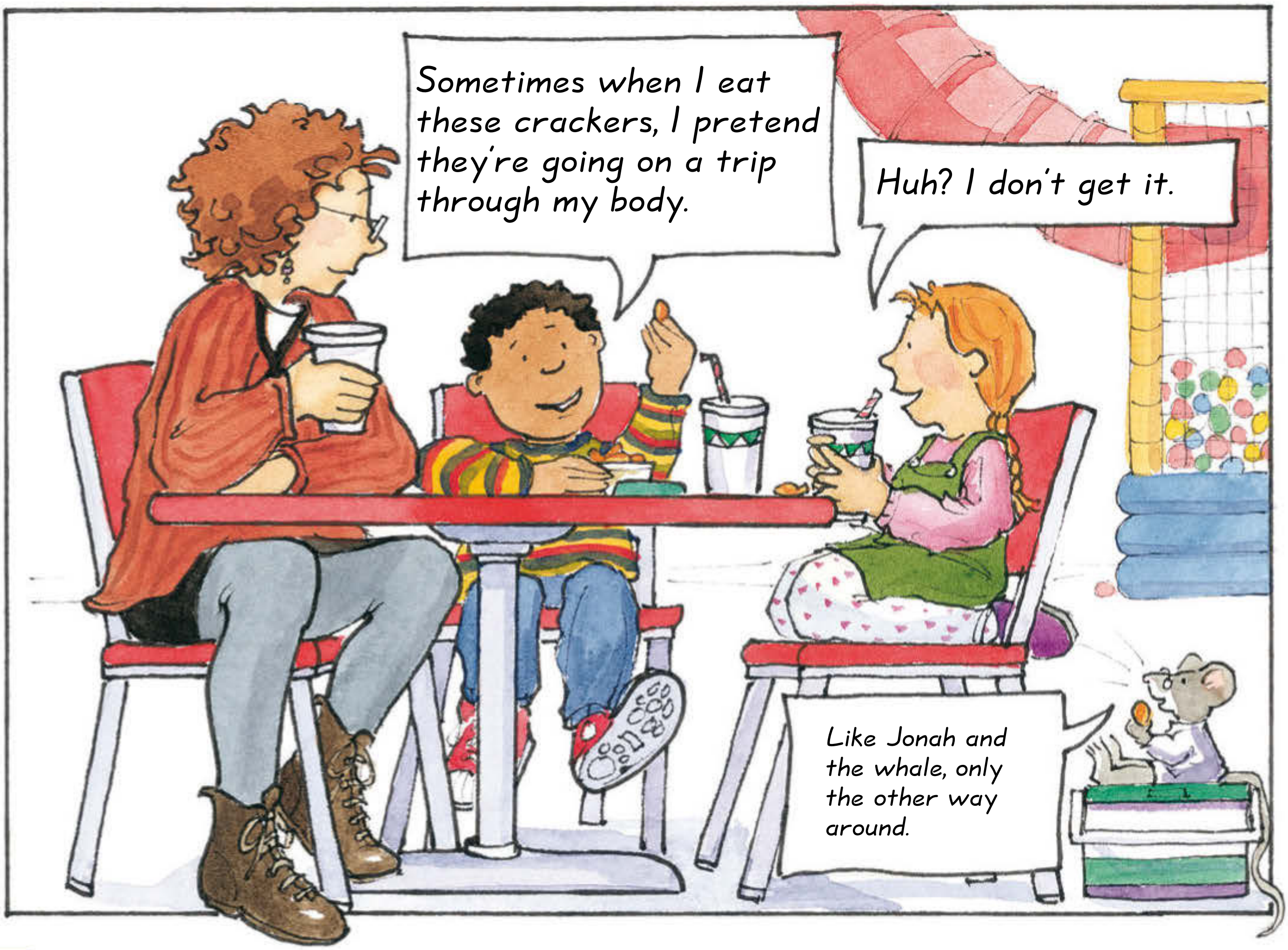
Amy

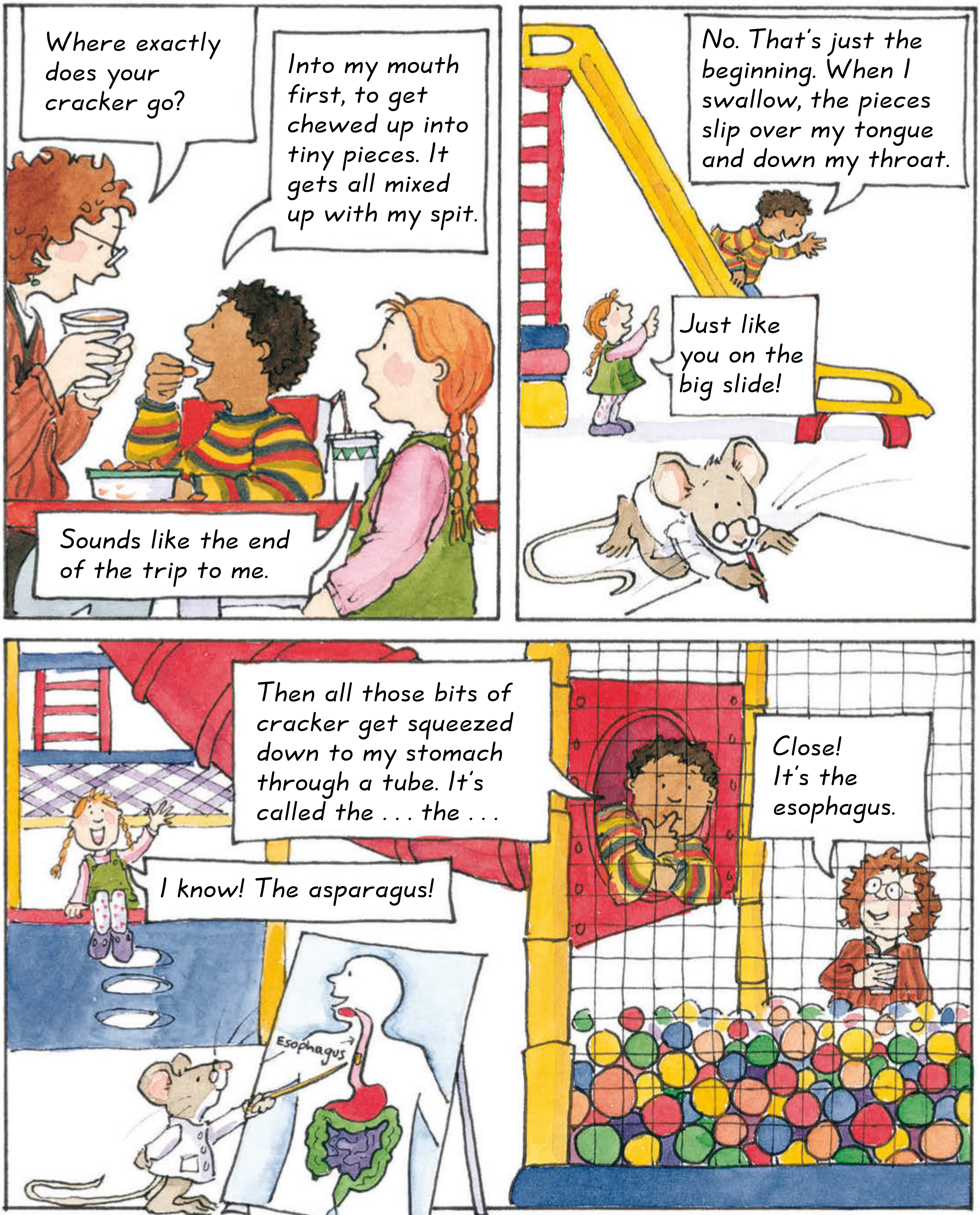
Martin

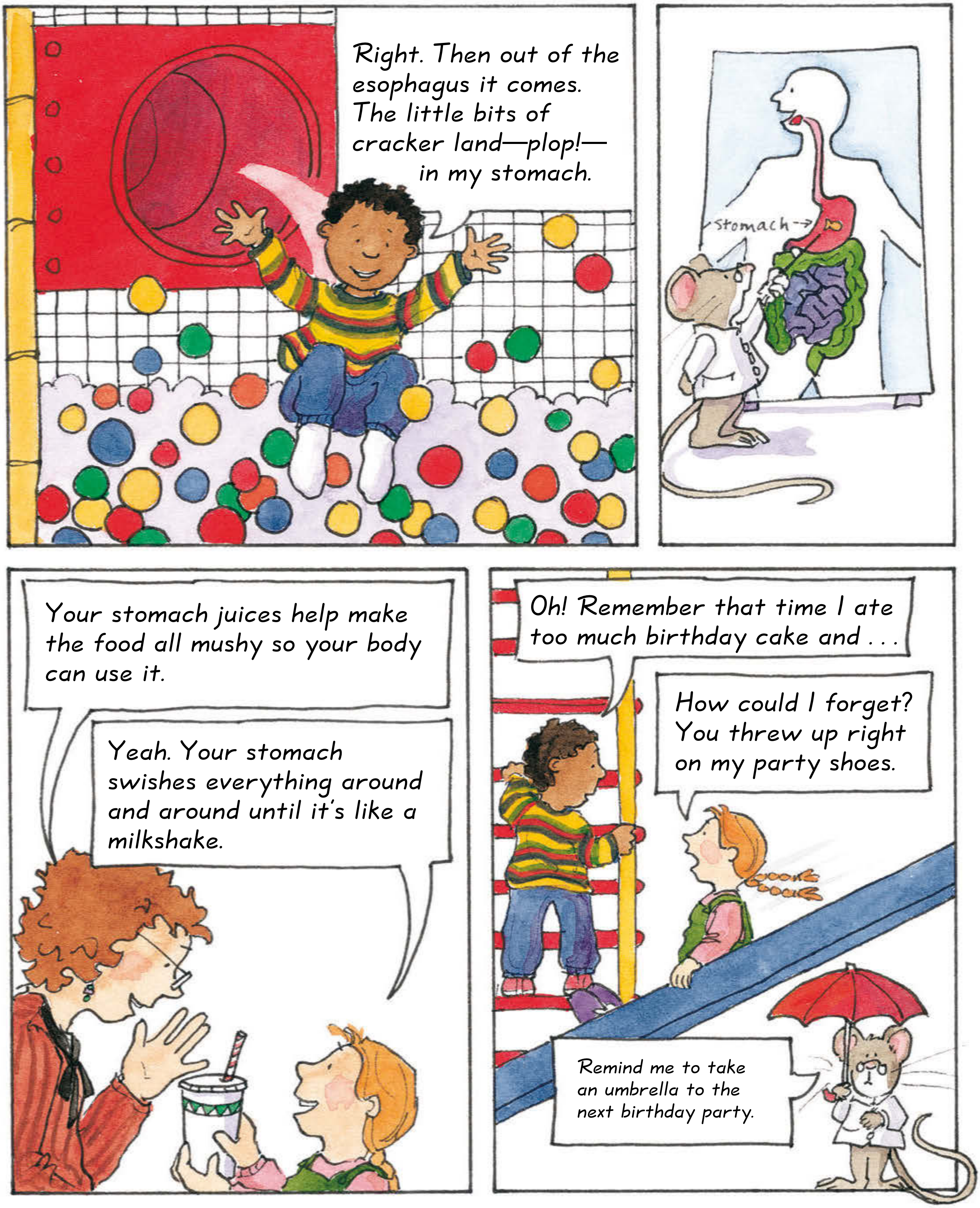
Click

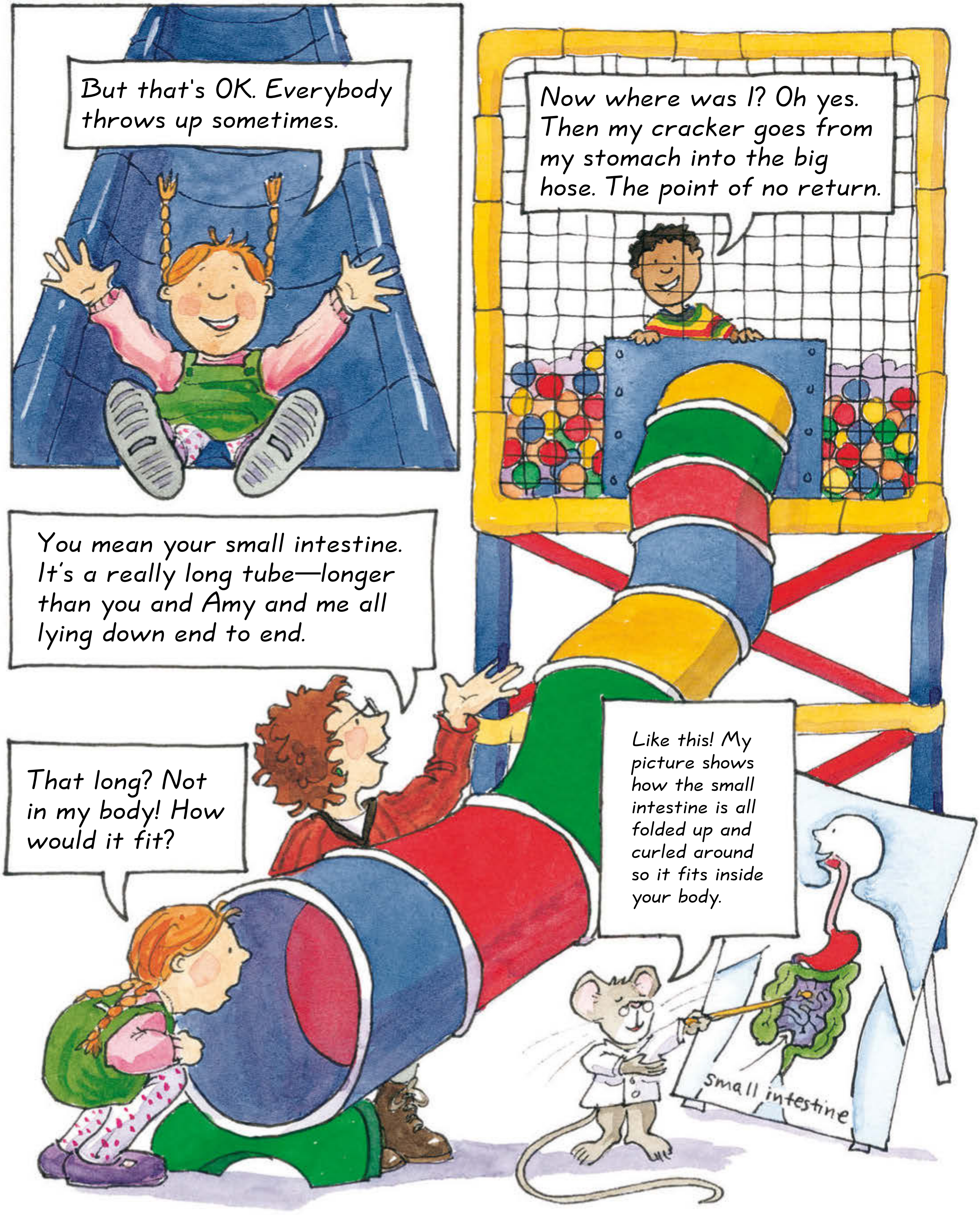
Liz
(the sitter)

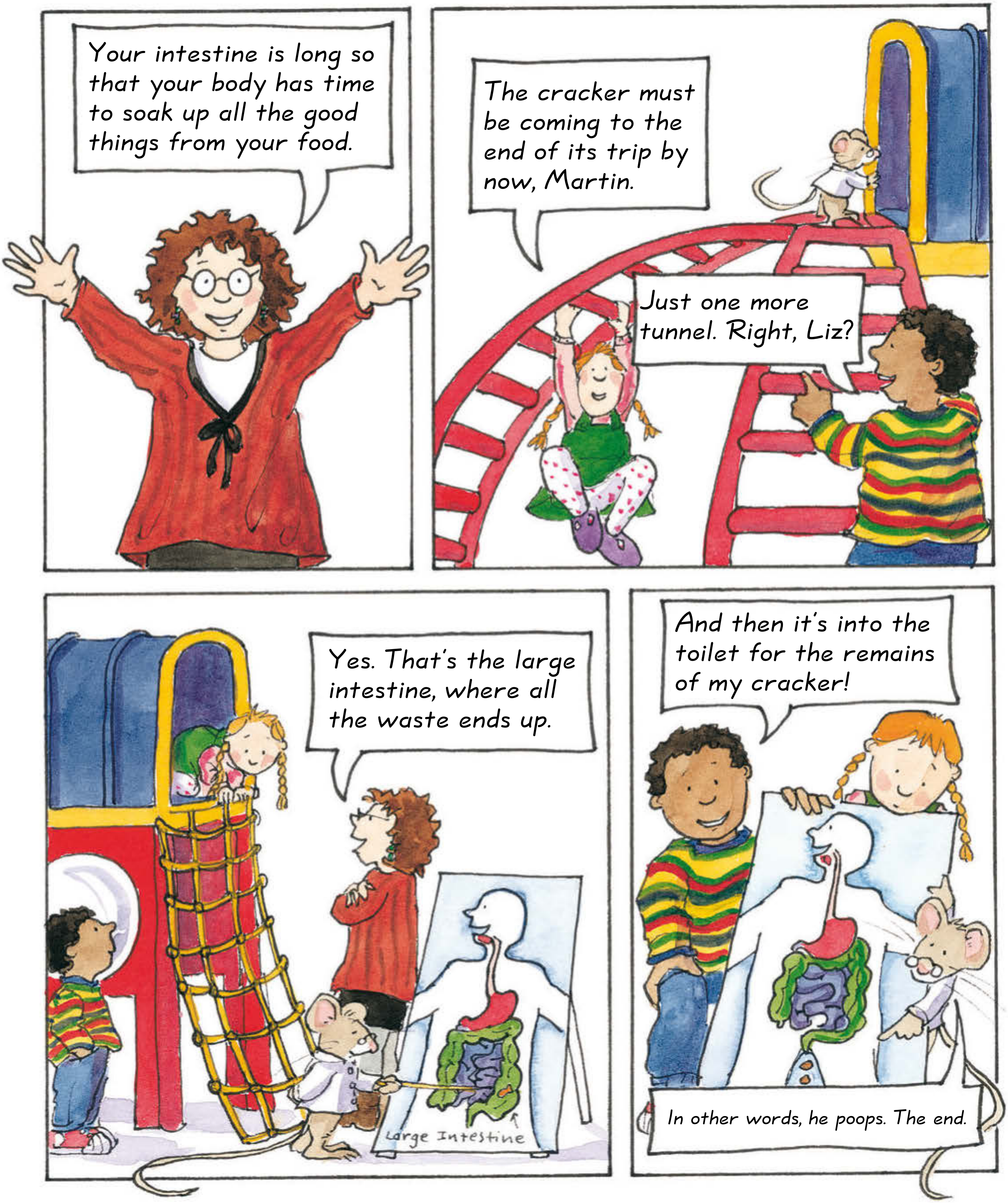

cracker


Sometimes when I eat these crackers, I pretend they're going on a trip through my body.
Huh? I don't get it.
Like Jonah and the whale, only the other way around.


Where exactly does your cracker go?
Into my mouth first, to get chewed up into tiny pieces. It gets all mixed up with my spit.
Sounds like the end of the trip to me.
No. That's just the beginning. When I swallow, the pieces slip over my tongue and down my throat.
Just like you on the big slide!
Then all those bits of cracker get squeezed down to my stomach through a tube. It's called the . . . the . . .
I know! The asparagus!
Esophagus
Close! It's the esophagus.

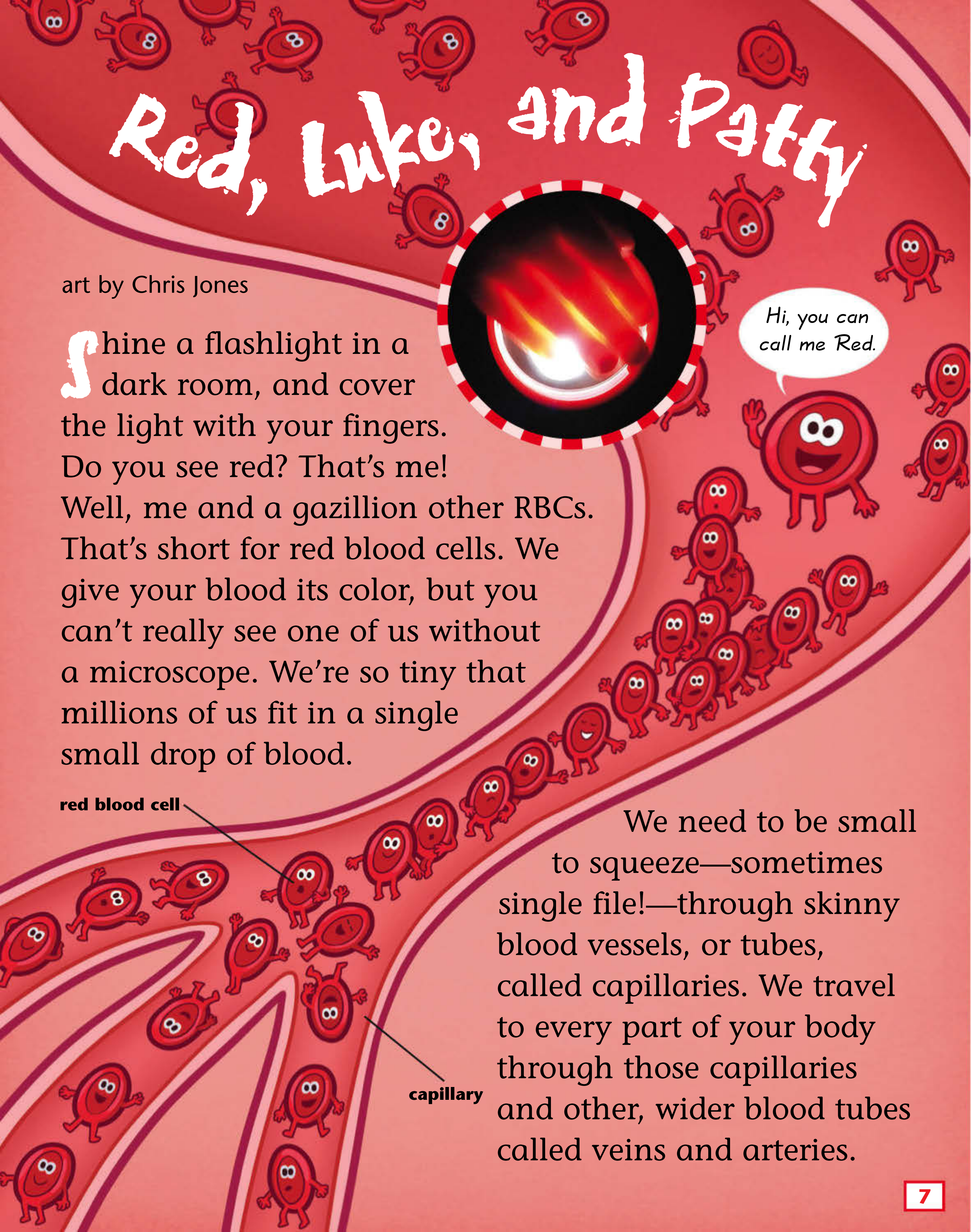

Right. Then out of the esophagus it comes. The little bits of cracker land—plop!— in my stomach.
stomach
Your stomach juices help make the food all mushy so your body can use it.
Yeah. Your stomach swishes everything around and around until it's like a milkshake.
Oh! Remember that time I ate too much birthday cake and . . .
How could I forget? You threw up right on my party shoes.
Remind me to take an umbrella to the next birthday party.


But that's OK. Everybody throws up sometimes.
Now where was I? Oh yes. Then my cracker goes from my stomach into the big hose. The point of no return.
You mean your small intestine. It's a really long tube—longer than you and Amy and me all lying down end to end.
That long? Not in my body! How would it fit?
Like this! My picture shows how the small intestine is all folded up and curled around so it fits inside your body.
small intestine


Your intestine is long so that your body has time to soak up all the good things from your food.
The cracker must be coming to the end of its trip by now, Martin.
Just one more tunnel. Right, Liz?
Yes. That's the large intestine, where all the waste ends up.
Large Intestine
And then it's into the toilet for the remains of my cracker!
In other words, he poops. The end.

Red, Luke, and Patty

art by Chris Jones

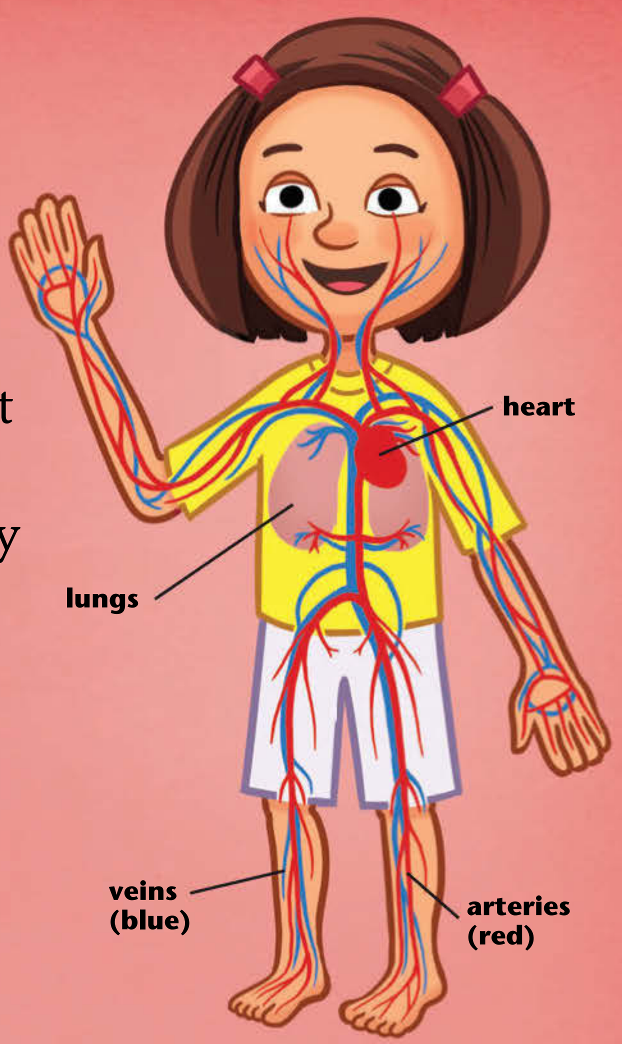


Shine a flashlight in a dark room, and cover the light with your fingers. Do you see red? That's me! Well, me and a gazillion other RBCs. That's short for red blood cells. We give your blood its color, but you can't really see one of us without a microscope. We're so tiny that millions of us fit in a single small drop of blood.

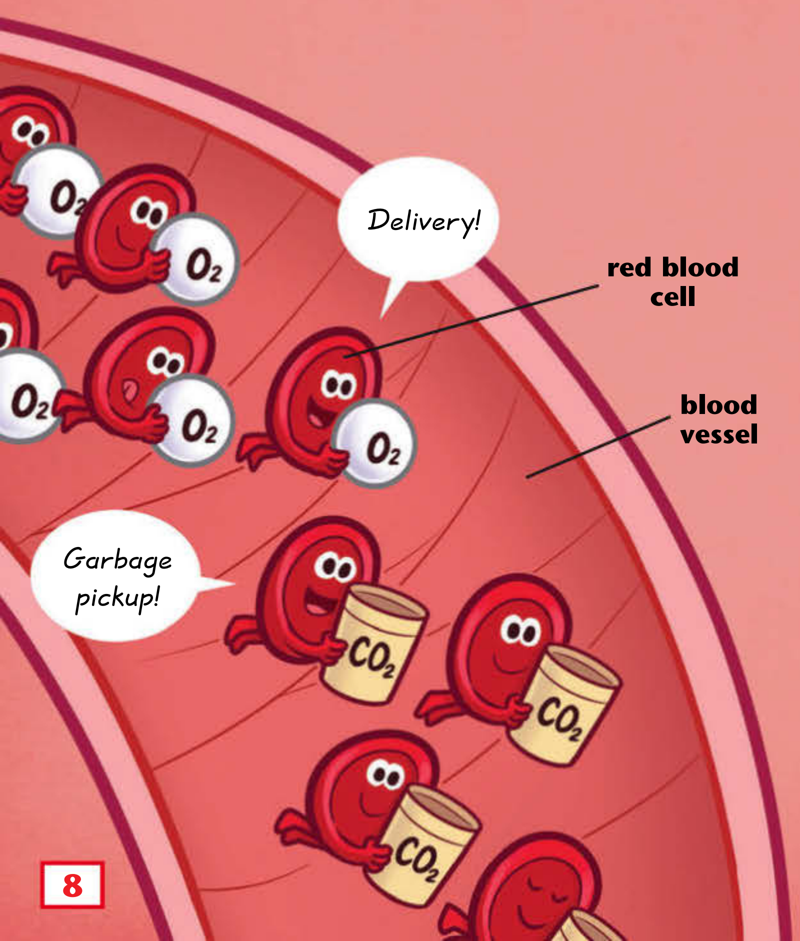
We need to be small to squeeze—sometimes single file!—through skinny blood vessels, or tubes, called capillaries. We travel to every part of your body through those capillaries and other, wider blood tubes called veins and arteries.

It can be a long trip. If you laid all the blood vessels in a human body end to end, they'd go around the world twice! They're like roads and sidewalks connecting every last bit of your insides.

And we RBCs are the delivery workers. We pick up oxygen, or O_2, from the air your lungs breathe in. Then we carry that O_2 to the rest of your body. Your body won't work right without plenty of O_2.


heart
lungs
veins (blue)
arteries (red)

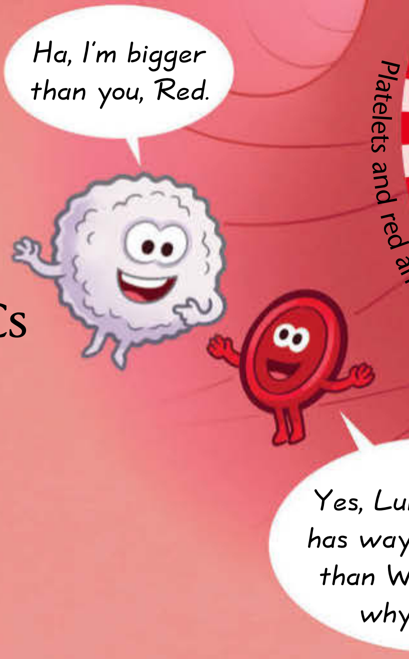
Every time your heart beats, it pushes blood around your body. Arteries carry oxygen-filled blood away from your heart. Veins take oxygen-poor blood back to your heart and lungs.

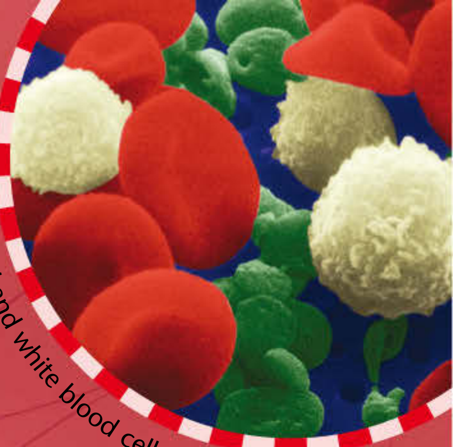

Delivery!
red blood cell
blood vessel
Garbage pickup!
O₂
CO₂

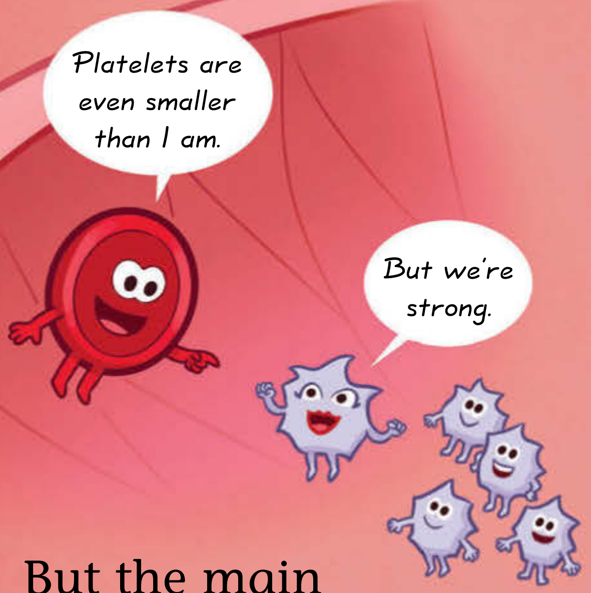
Once we drop off the oxygen, we pick up waste your body makes called carbon dioxide, or CO_2. We bring the CO_2 to your lungs, where it gets breathed out. Round and round we go, hundreds of times each day.

RBCs aren't the only workers in your blood.

Meet Luke, short for leukocyte. He's a white blood cell, or WBC. WBCs fight disease germs that can make you sick.

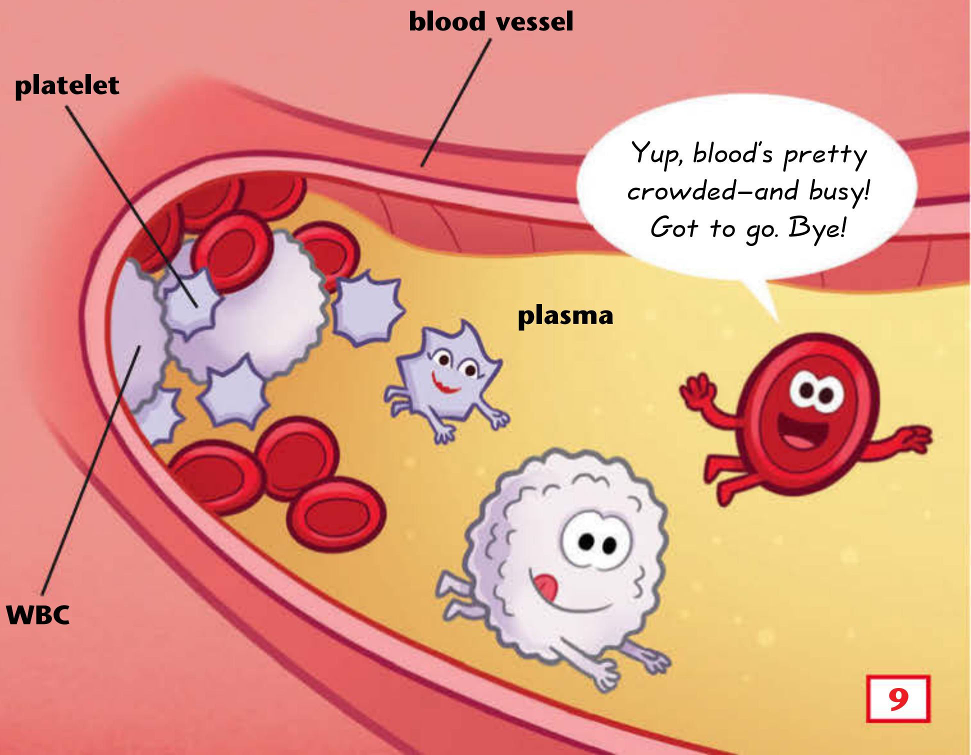

Ha, I'm bigger than you, Red.
Yes, Luke, but blood has way more RBCs than WBCs. That's why it's red!


Platelets and red and white blood cells under a microscope.


Platelets are even smaller than I am.
But we're strong.

Patty and her pals are platelets. They're the repair crew. Any time a blood vessel gets damaged, platelets find the spot. They stick together there and form a clot, or plug, to stop blood from leaking out.

But the main ingredient of blood is plasma, the watery yellowish liquid that the rest of us float in. Tiny food and waste particles get carried along in plasma on their way through your body too.


blood vessel
platelet
Yup, blood's pretty crowded—and busy! Got to go. Bye!
plasma
WBC

MUSCLE POWER

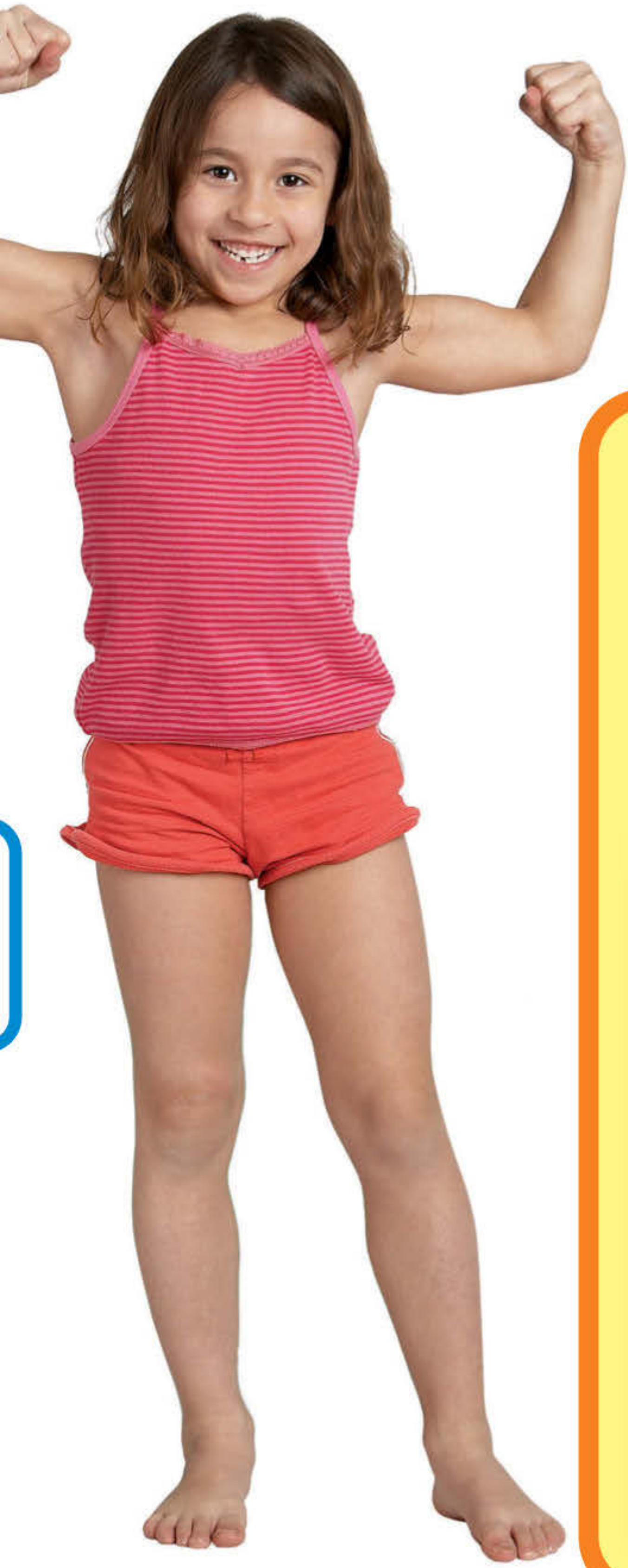
You have more than 600 muscles in your body. Without them, you wouldn't be able to walk or talk, smile or frown, chew or swallow or even take a breath.

Many of the muscles in your face are attached to skin, not just bones. Look what they can do!

Your smallest muscle, the stapedius, is inside your ear.

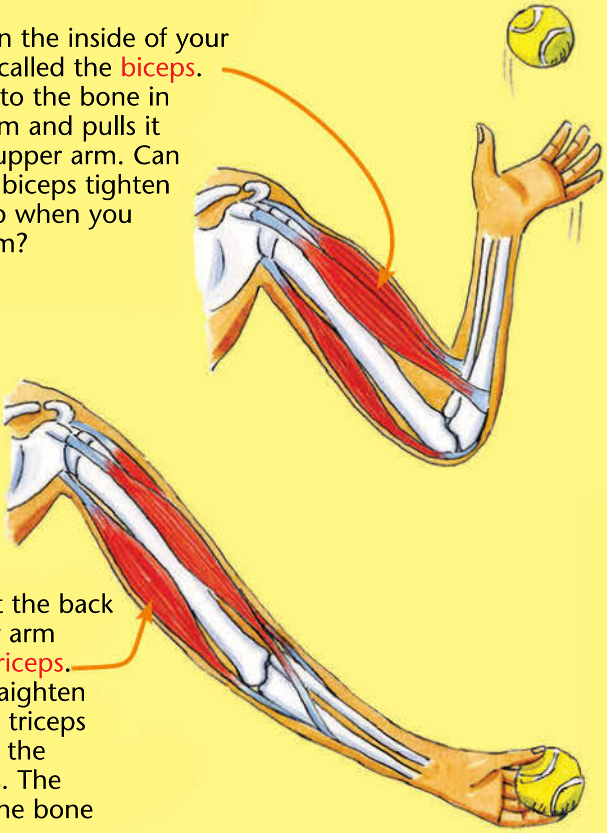
Your biggest muscle, the gluteus maximus, is in your bottom.

Most of your muscles are attached to your bones. When you want to move, your brain sends signals that tell your muscles to contract, or tighten and get shorter. When the muscles contract, they pull on your bones and make them move.



Muscles work by tightening and relaxing. They can only pull on your bones. They can't get longer and push. So most muscles work in pairs.

You can feel how it works. Hold your upper arm with your other hand, and then bend and straighten the arm at your elbow.



The muscle on the inside of your upper arm is called the biceps. It is attached to the bone in your lower arm and pulls it toward your upper arm. Can you feel your biceps tighten and bunch up when you bend your arm?

The muscle at the back of your upper arm is called the triceps. When you straighten your arm, the triceps contracts and the biceps relaxes. The triceps pulls the bone in your lower arm back down.

art by Paul Meisel

Bending your arm is a pretty simple movement. Running, jumping, and other more complicated movements use many, many more muscles, all contracting and relaxing at just the right times.

I think my muscles are getting tired and need some ice cream!

But you use your muscles even when you're standing still! Muscles in your legs, bottom, back, and neck stay just a little bit tightened to support your bones and keep you from falling down.

When you sleep, your muscles relax, and your body gets limp and floppy.

You can't grow new muscles, but you can make the ones you have bigger and stronger. All you have to do is use them. The more you move, the stronger your muscles get.

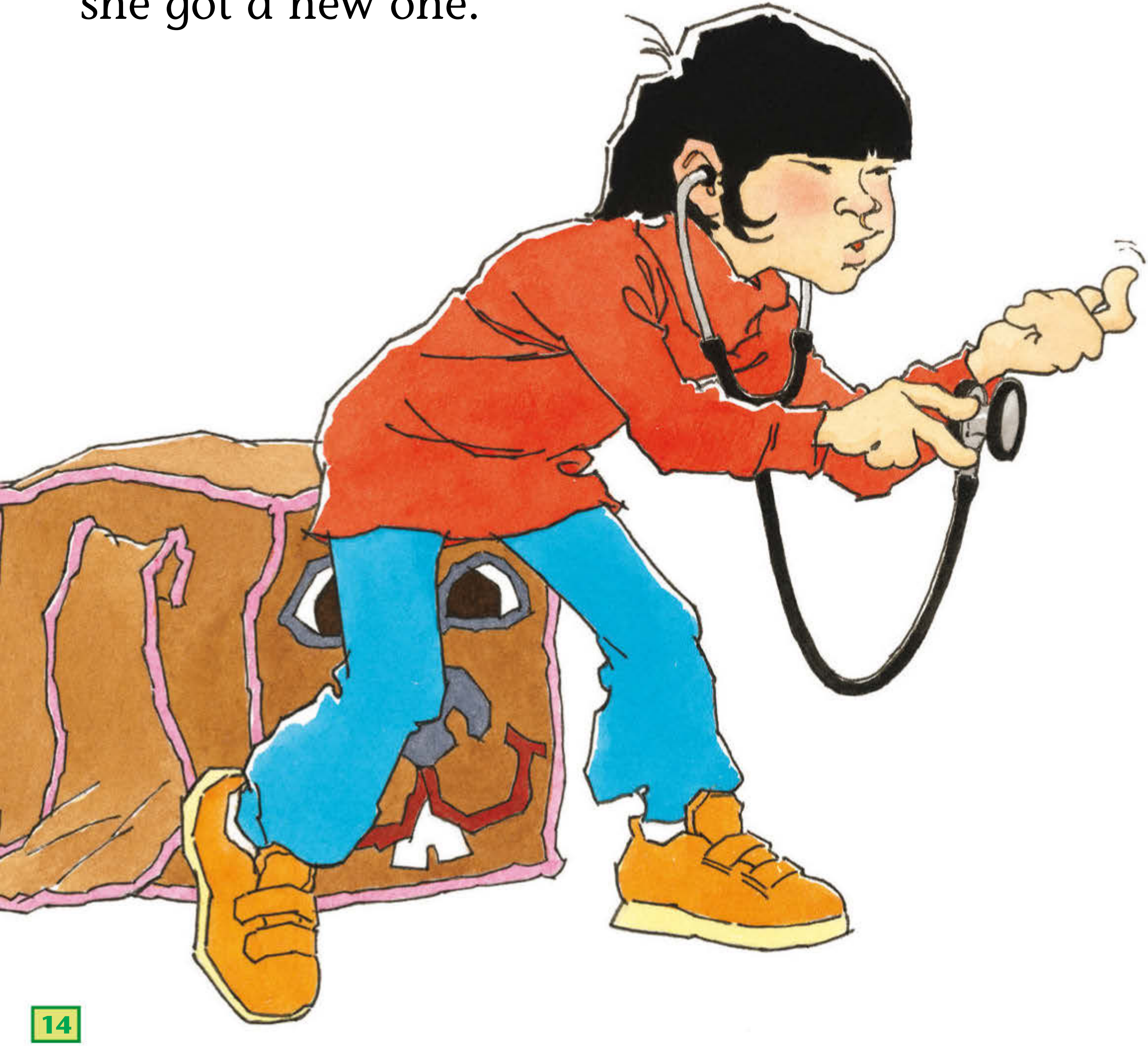
If you don't exercise your muscles regularly, they'll become weaker and weaker. They might not be able to pull hard or hold you up anymore.

So move your muscles!

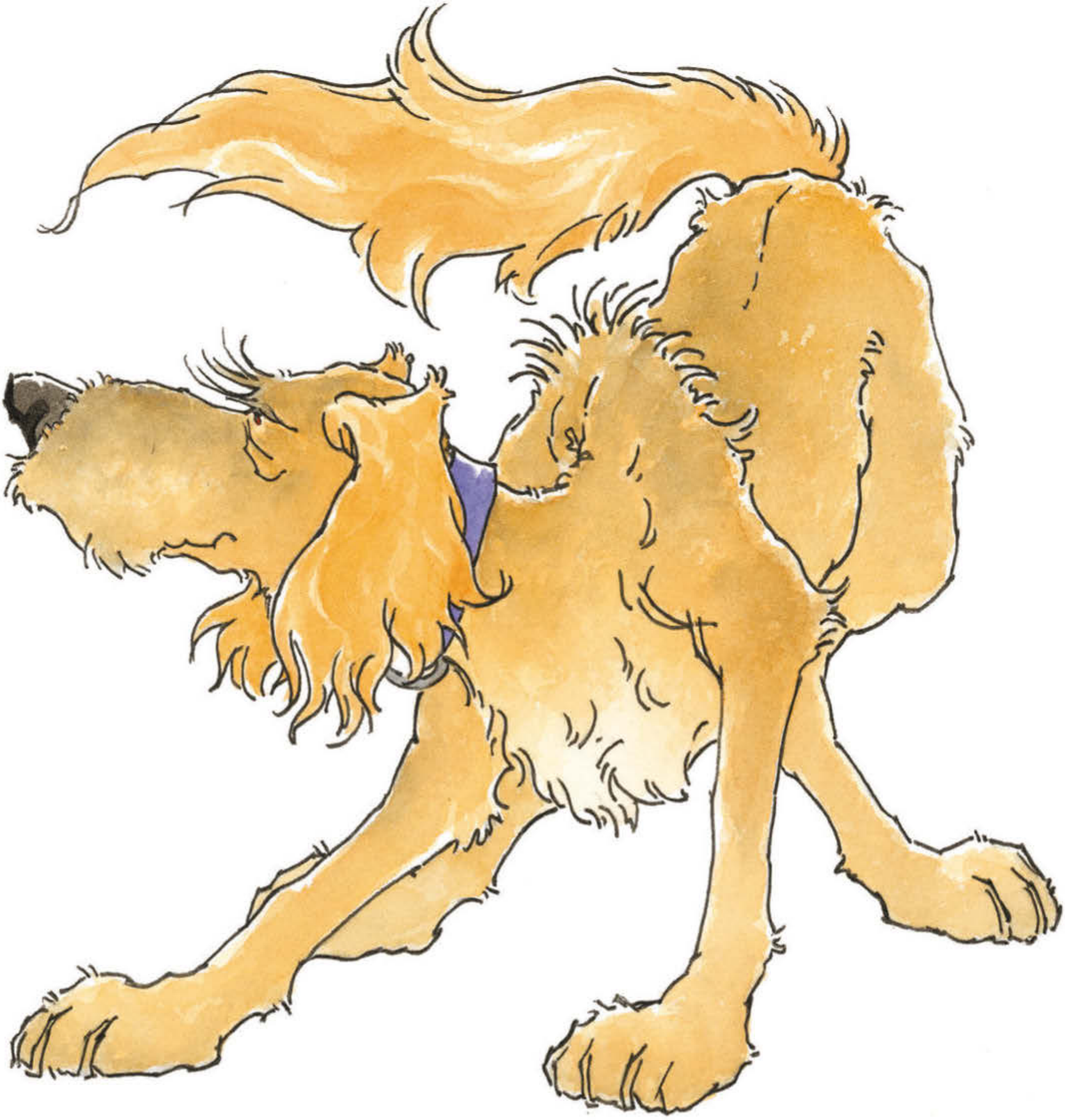
Yo Wants to Know

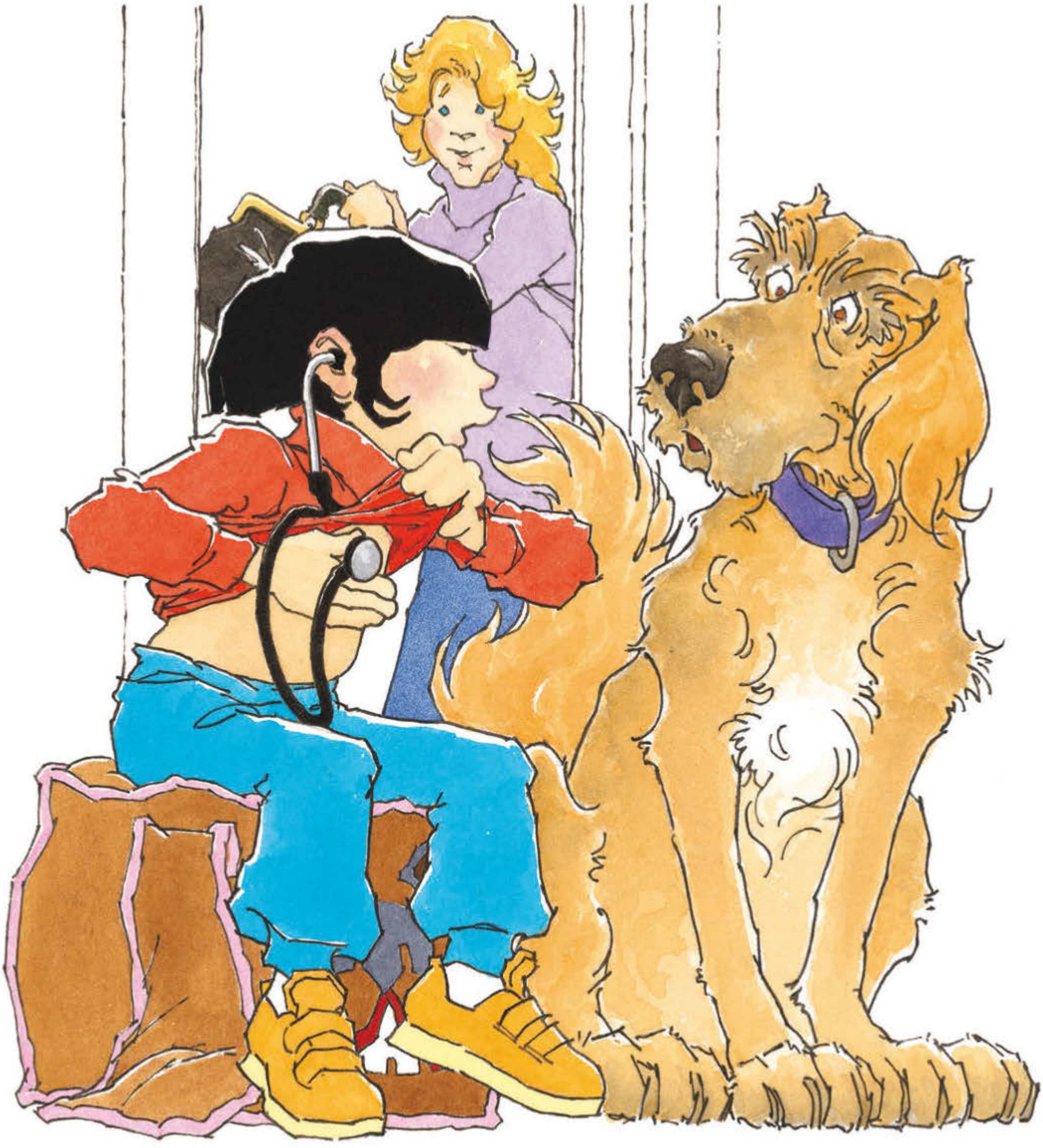
by Lea and Alan Daniel

"Look, Lips," says Yo. "Mom's letting me use her old stethoscope because she got a new one."



"She uses it to listen to people's insides. It makes things sound louder. Let's try it out."

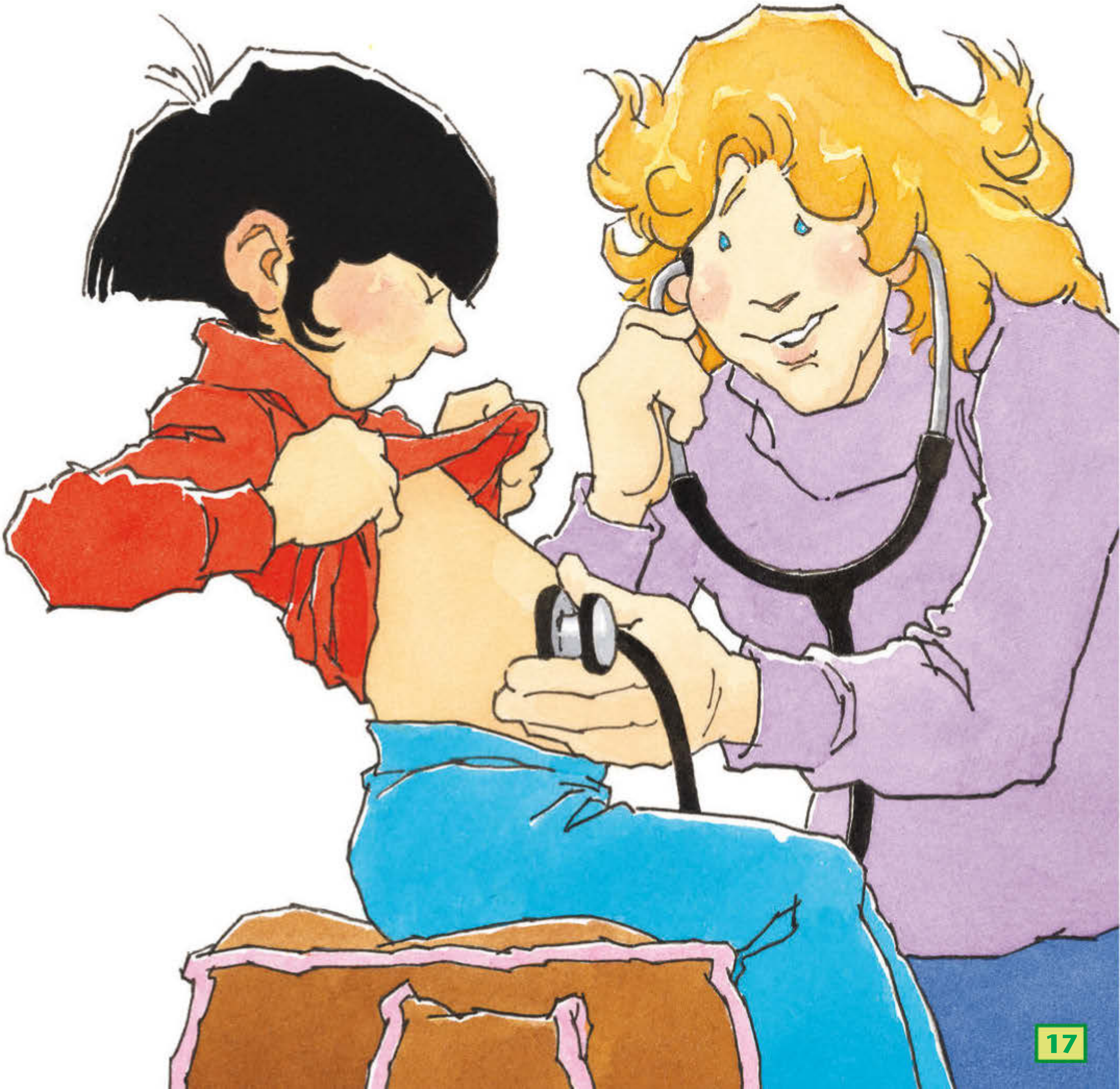




“I can hear my heart going blub blub . . . blub blub . . . blub blub,” says Yo. “Mom says it’s pumping blood to every single part of my body.”

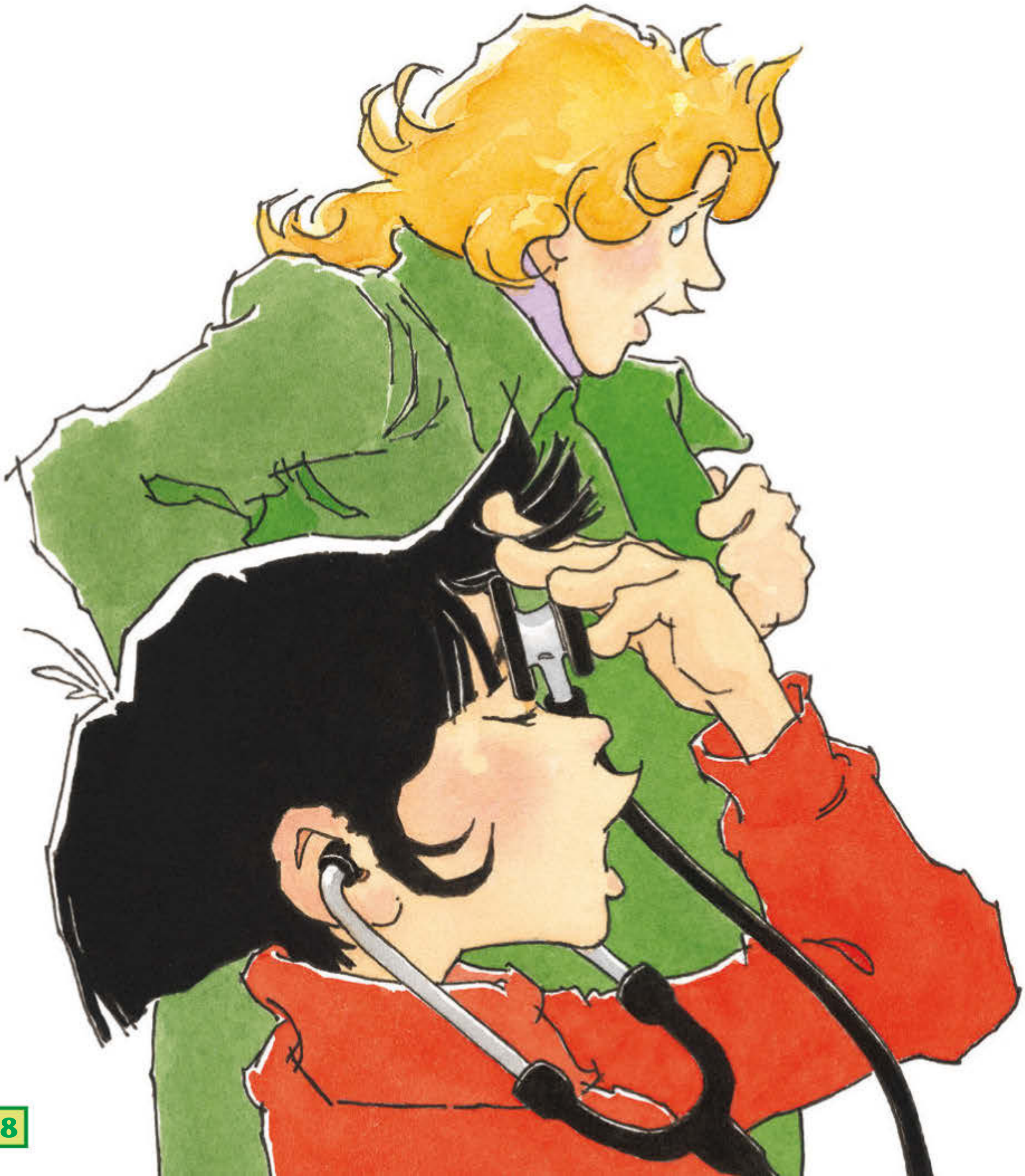
"Let's see what else we can hear," says Mom. "Hmm. I hear an orange in your tummy, and granola and milk."

"Very funny," says Yo. "You already knew what I had for breakfast."

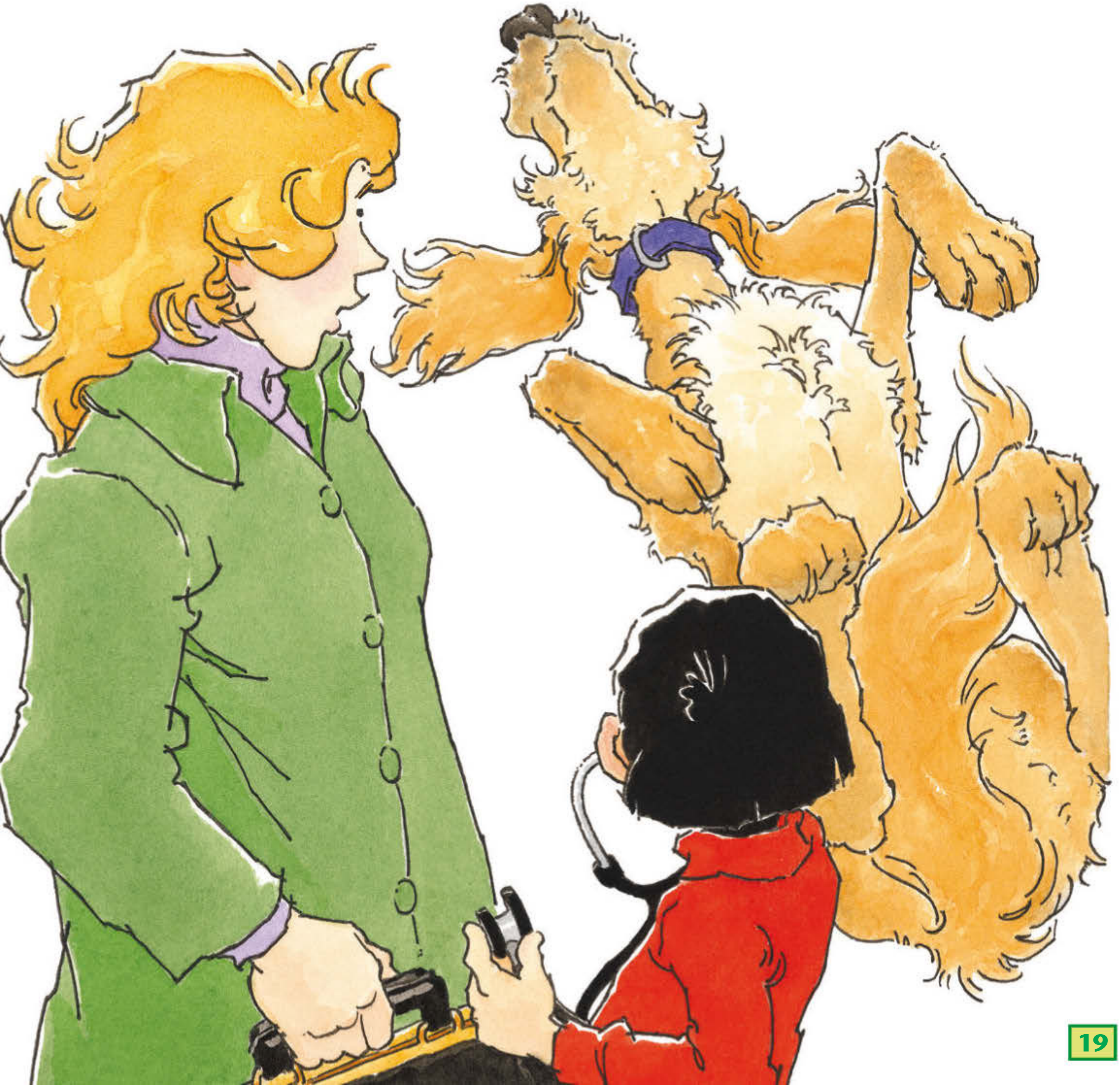


“I guess I can’t fool you,” says Mom. “What I really heard was nice, healthy, gurgly sounds.”

“And inside my head—Hey! I don’t hear anything!” exclaims Yo.



"Thinking doesn't make a noise," says Mom. "Look, Doctor. Lips is ready for his checkup. You can find out if his heart goes blub blub like yours."

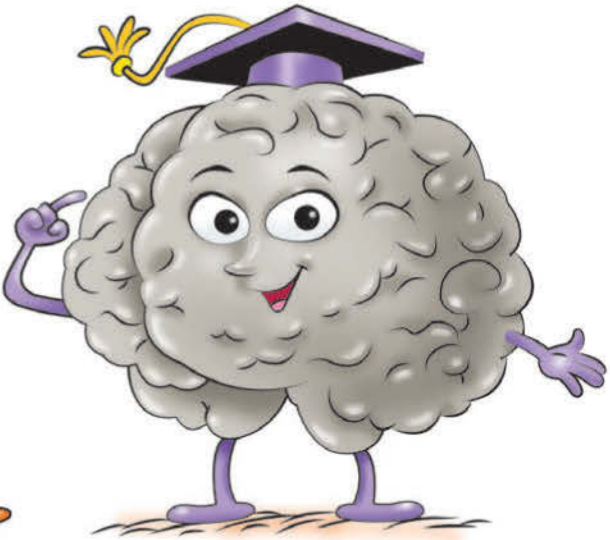


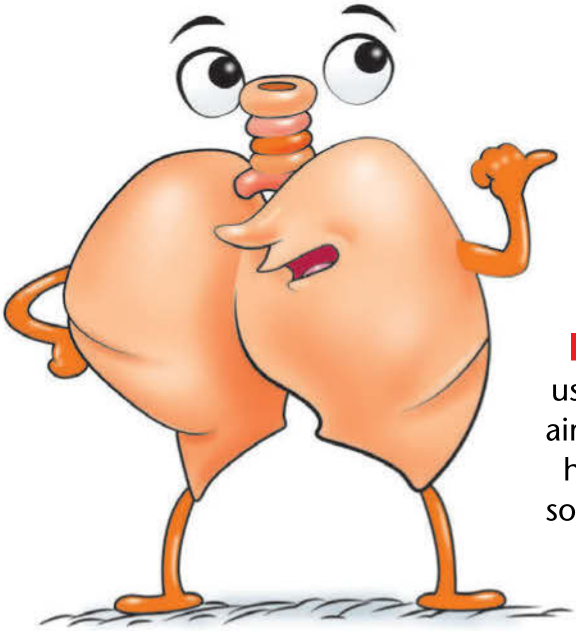
Your Insides Speak Out

by Elizabeth Preston
art by Paul Sharp

You have lots of organs inside your body. No, we don't mean musical instruments. A body organ is a body part with a specific job. All your organs work hard to keep your body healthy. But which one is the best? Let's ask them!

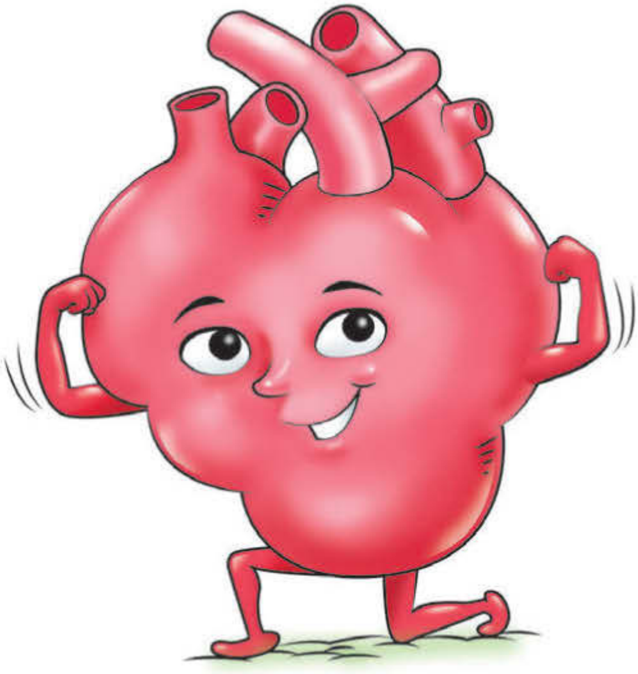
No organ is better than me, your **brain.** Why? Just think about it. . . . What are you using to think about it? ME, of course!

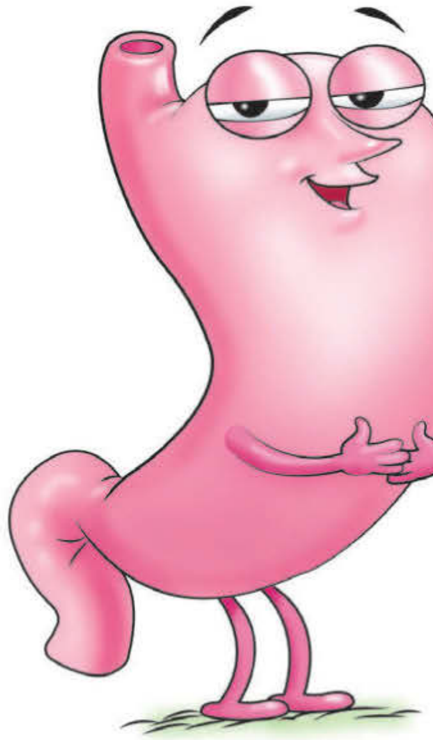


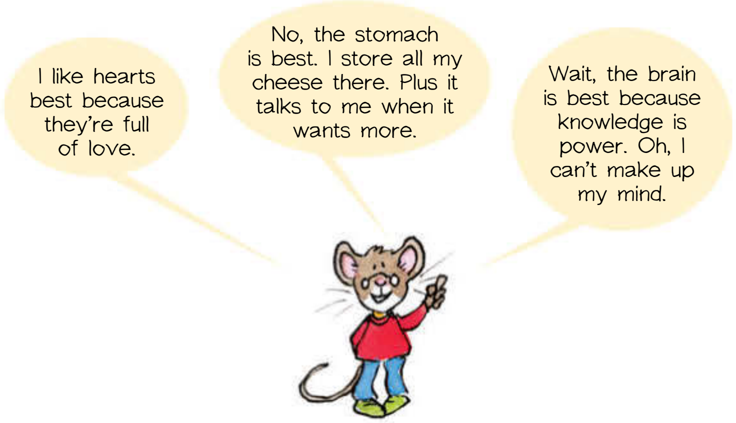


Don't listen to Brain. We're your **lungs,** and we're the best! Without us, you couldn't breathe. We bring you air when you're running or relaxing. We help you talk to your friends or sing a song. And when it's time to take a deep breath and blow out your birthday candles, we're there too.

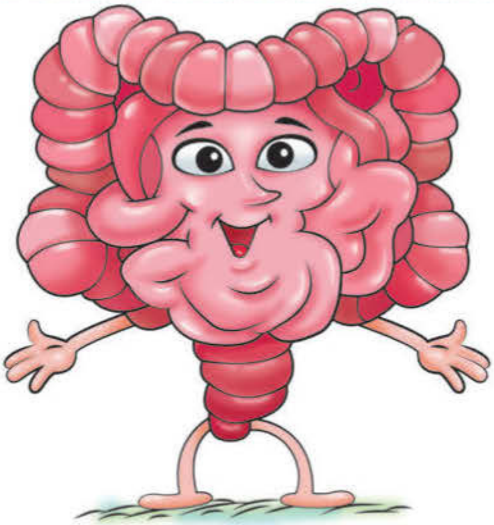
What organ works the hardest? I do! I'm your **heart** and I'm pumping all the time, even when you're asleep. Feel the BOOM BOOM BOOM in your chest? That's me squeezing tight. I push your blood through your body and back again. Day or night, I never get tired!





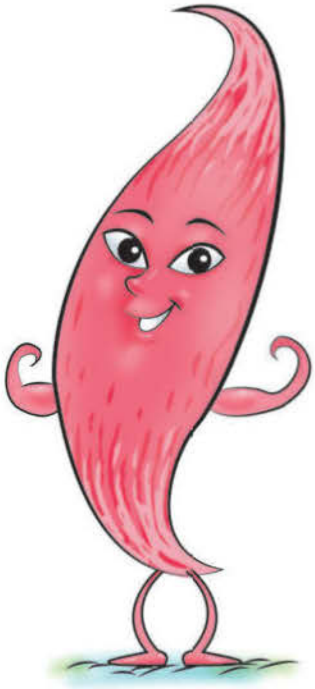

I like hearts best because they're full of love.
No, the stomach is best. I store all my cheese there. Plus it talks to me when it wants more.
Wait, the brain is best because knowledge is power. Oh, I can't make up my mind.

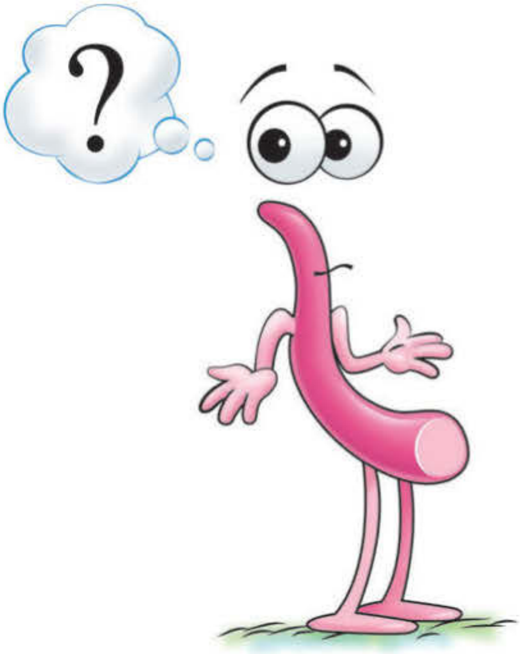
Yo. It's me, your most awesome organ. Where do you put delicious pizza? That's right, your **stomach.** I stretch out to hold all the food and drinks you swallow. Inside me there's powerful acid to break all that stuff down. I also make you burp. You're welcome.



Actually, *we're* more important than the stomach. We're your **intestines.** We're a long, long tube scrunched tight in your belly. If you stretched us out, we'd be about 25 feet long. We help you get all the nutrition out of your food. When we're finished, it gets turned into poop.

Do you like to skip and run? Crab walk and cartwheel? Play piano? Wiggle your eyebrows? Then your favorite organ has to be your **muscles.** We keep you moving and get you where you're going.

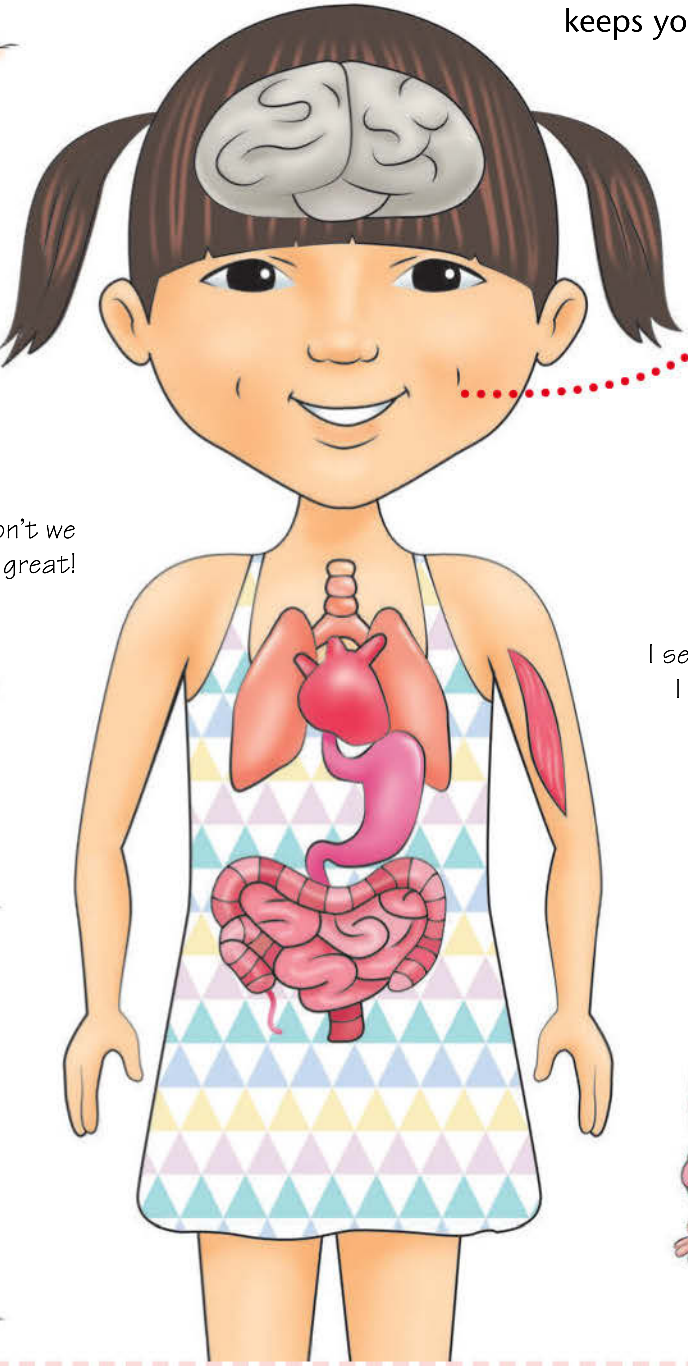


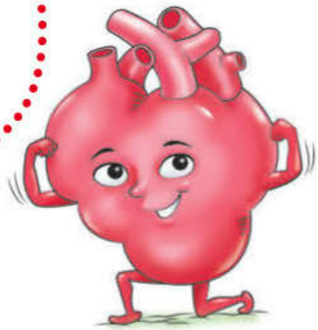


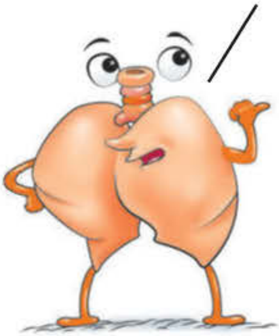
You love a good mystery, right? That's why the best organ is me: your **appendix!** I look like a little tail stuck onto the intestines. Scientists have some ideas about what I do, but no one knows for sure. If you find out, can you please tell me?

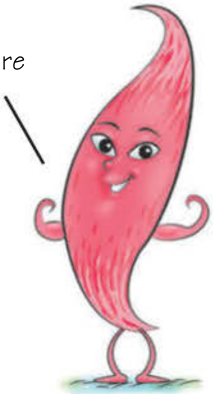
That's me inside her head.

I'm your **skin.** I keep you wrapped up tight. Without me, your insides would be on the outside! I'm your biggest organ—but I'm not the best. No organ is the best, because we all have to work together. We're the team that keeps you going strong!





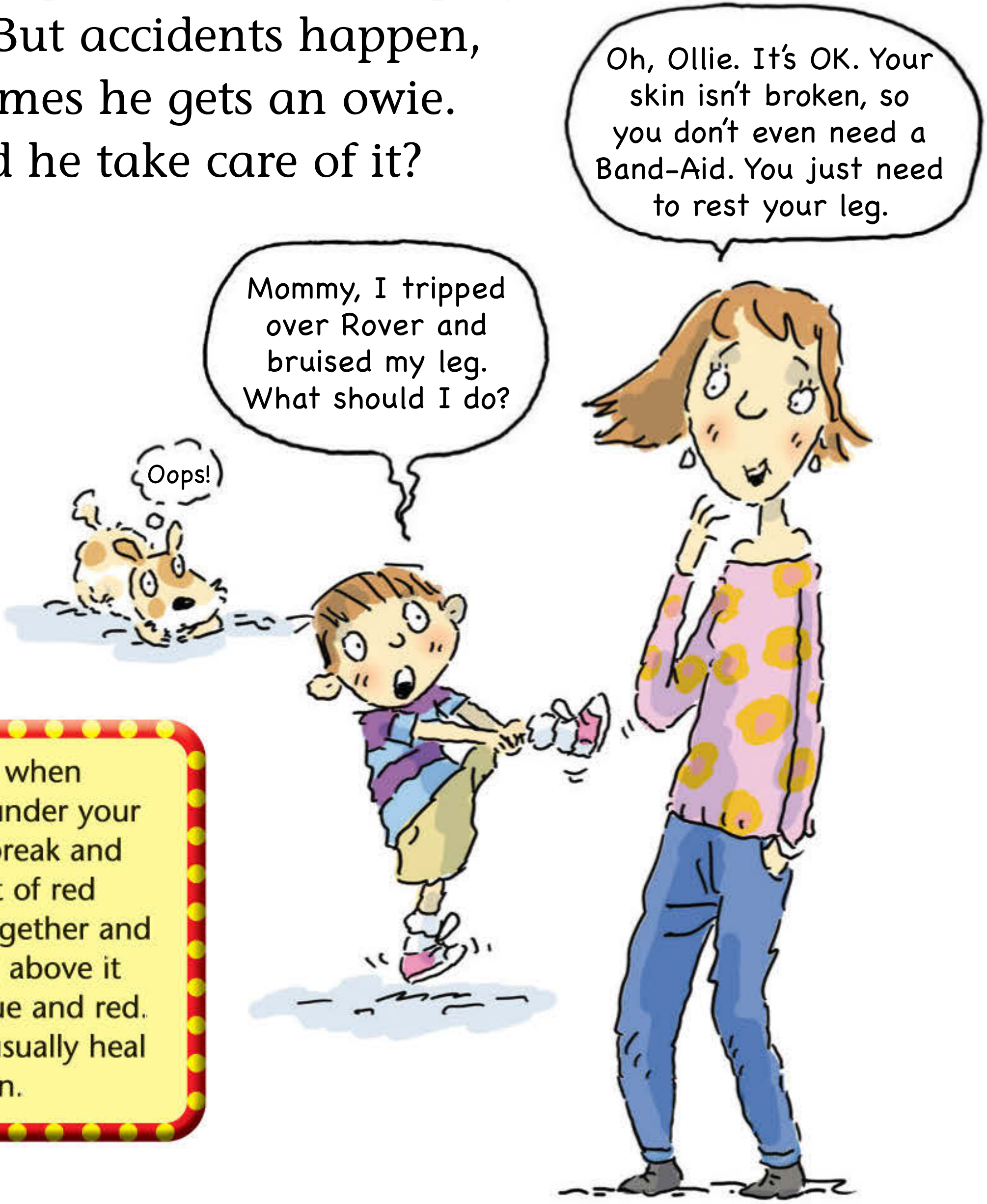

Hey! Don't we all look great!


I see where I fit in.

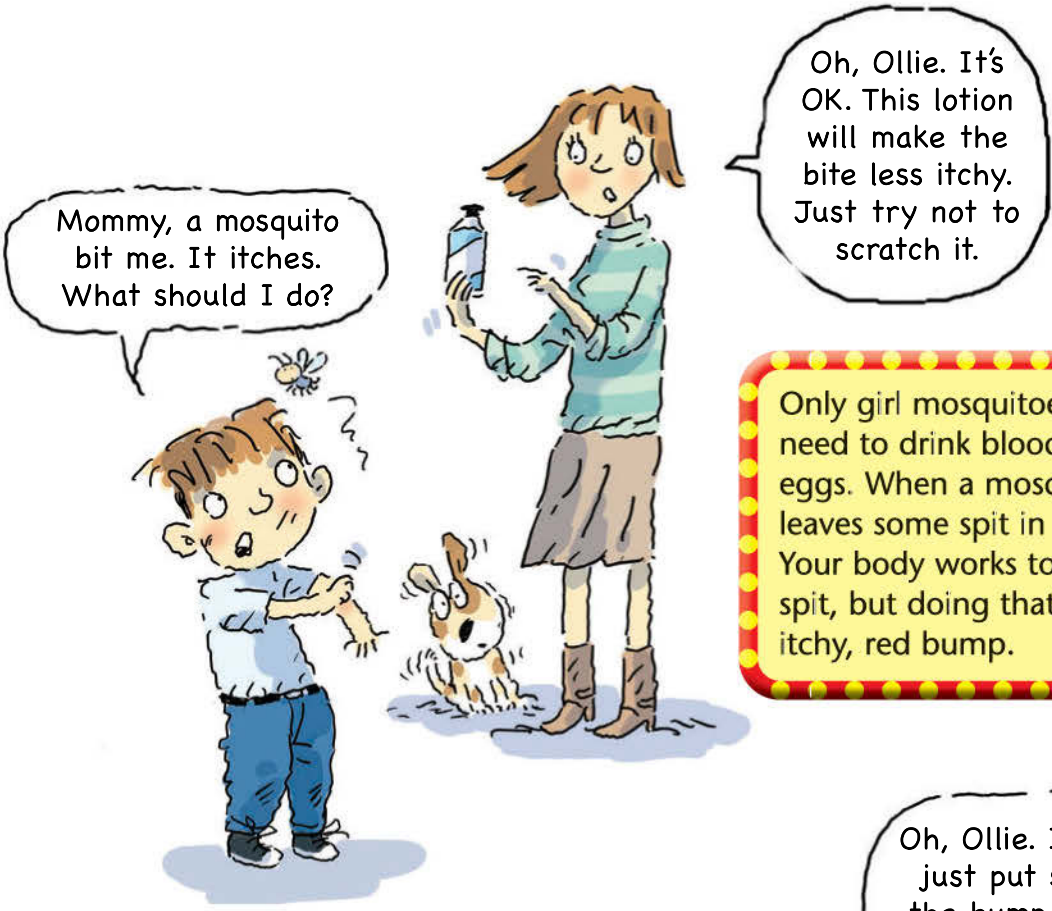
Ollie's Owies

art by Mike Gordon

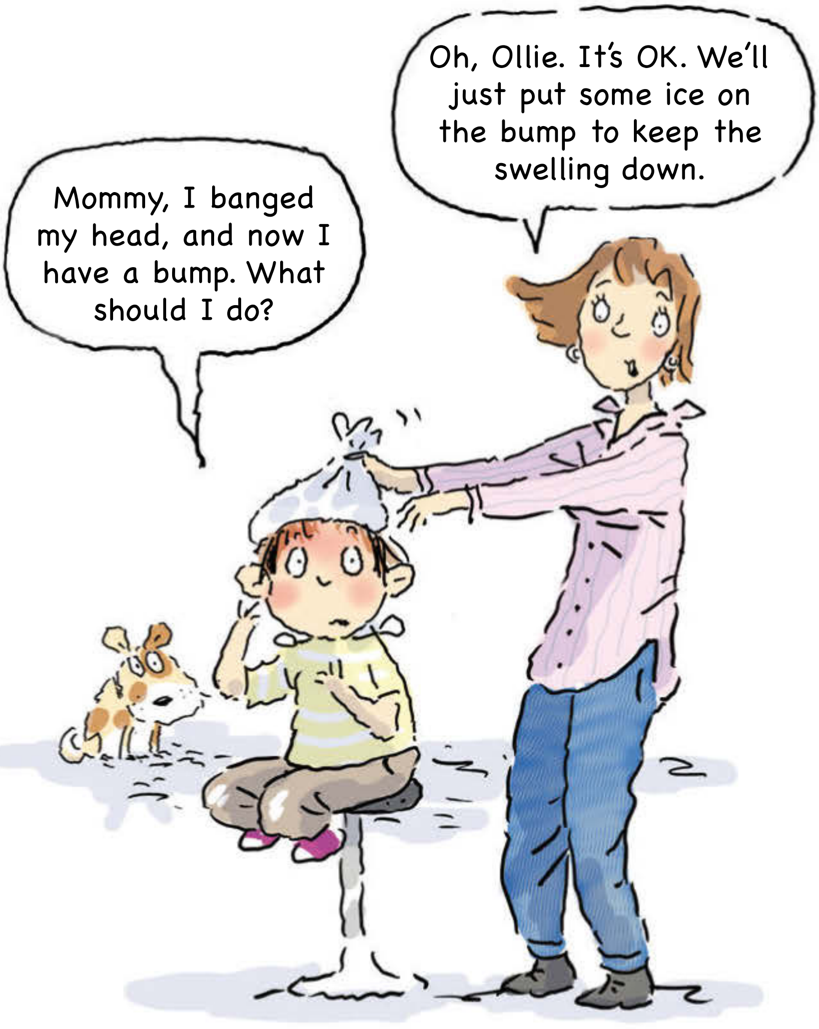
Ollie takes good care of himself. He eats healthy food. He gets plenty of sleep. He moves and plays every day. But accidents happen, and sometimes he gets an owie. How should he take care of it?


Oh, Ollie. It's OK. Your skin isn't broken, so you don't even need a Band-Aid. You just need to rest your leg.
Mommy, I tripped over Rover and bruised my leg. What should I do?
Oops!

A bruise forms when blood vessels under your skin's surface break and leak. A little bit of red blood pools together and makes the skin above it look purply blue and red. Small bruises usually heal all on their own.

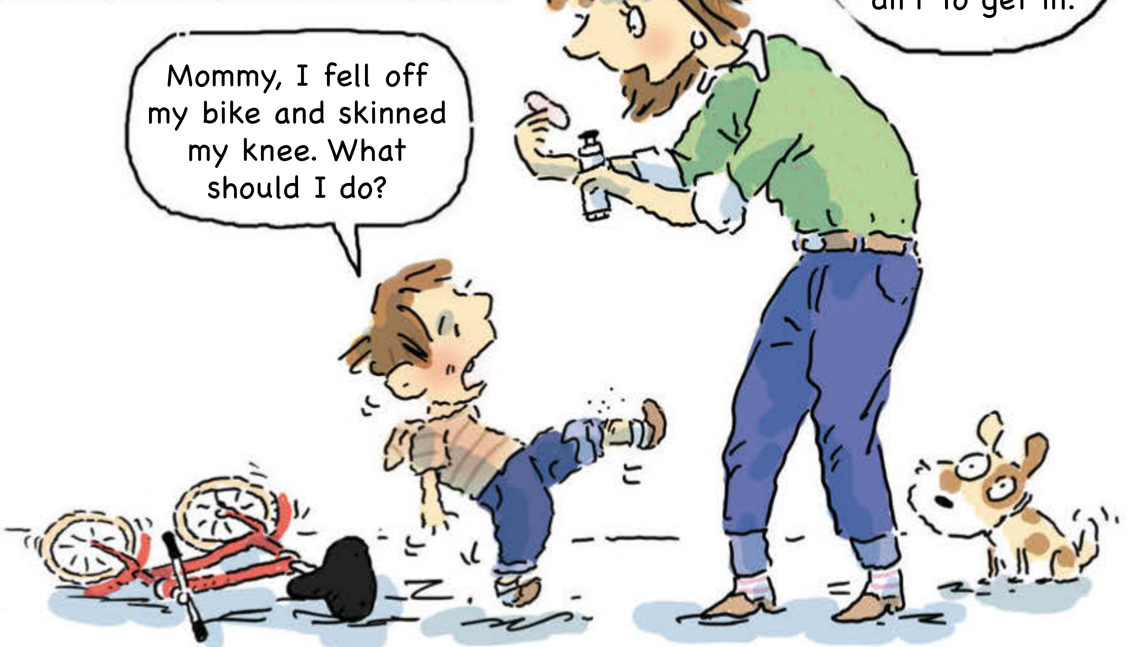

Mommy, a mosquito bit me. It itches. What should I do?
Oh, Ollie. It's OK. This lotion will make the bite less itchy. Just try not to scratch it.

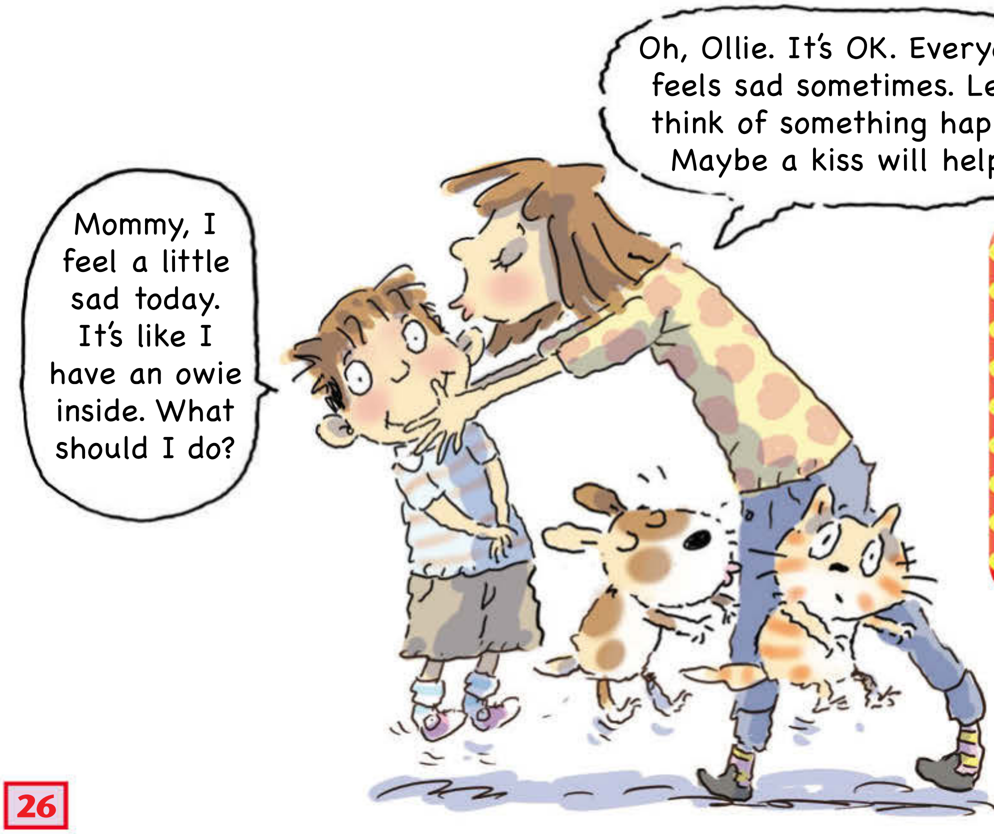
Only girl mosquitoes bite. They need to drink blood to lay their eggs. When a mosquito bites, she leaves some spit in the wound. Your body works to get rid of the spit, but doing that gives you an itchy, red bump.


Mommy, I banged my head, and now I have a bump. What should I do?
Oh, Ollie. It's OK. We'll just put some ice on the bump to keep the swelling down.

Your head has lots of small blood vessels under the skin. When they break but your skin does not, the leaking blood gets trapped and can push your skin out to make a bump. By themselves, most bumps are not too serious. But check with a doctor if there are other problems, such as vomiting or blurry vision.

If you get a little cut or scrape, your blood will start to clot, or stick together, in just a few minutes. When the bleeding stops, the clot will harden and form a scab. The scab protects the area while new skin grows beneath it.


Oh, Ollie. It's OK. I'll clean the scrape and put some ointment and a Band-Aid on it. We don't want dirt to get in.
Mommy, I fell off my bike and skinned my knee. What should I do?

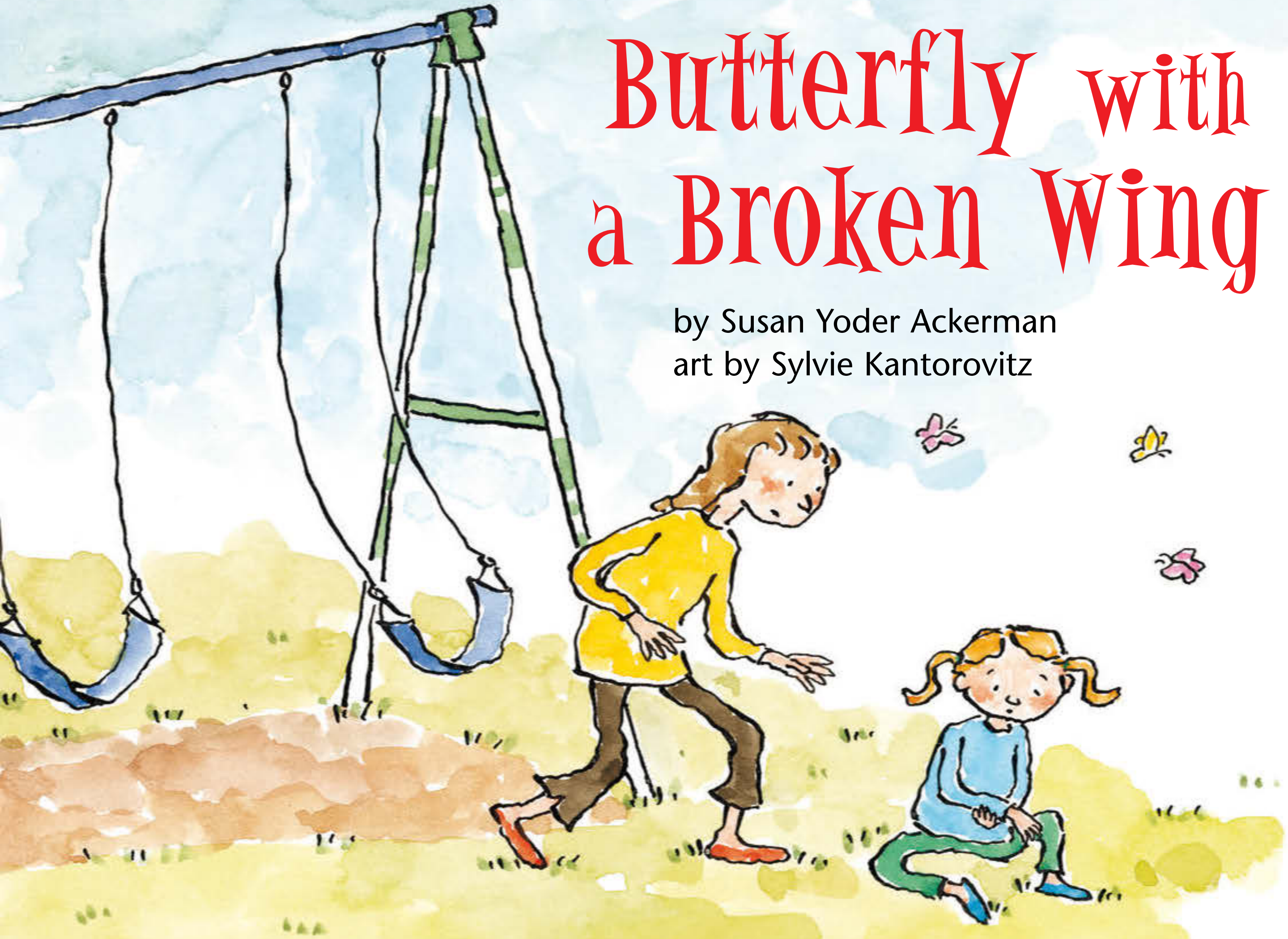

Oh, Ollie. It's OK. Everyone feels sad sometimes. Let's think of something happy. Maybe a kiss will help.
Mommy, I feel a little sad today. It's like I have an owie inside. What should I do?

Spending time with people you love—and who love you—can make you feel good. And being around happy people can make you feel happy too.

Yay!
No More Owies!

Butterfly with a Broken Wing

by Susan Yoder Ackerman
art by Sylvie Kantorovitz



My sister Daphne and I were swinging in the backyard when we got the idea to fly like butterflies. The air felt so good rushing past that it seemed like it ought to hold us up when we jumped off and away from the swings.

I landed on my side with my arm twisted under me. “Oops!” I said. And then, “Ouch!”

Daphne was jumping up and laughing, and I tried to do the same. But my arm felt strange. It ached deep inside. I didn’t want to move it.

Daphne stopped laughing when she saw how I was holding my arm. “Oh, Ella, maybe it’s broken!” she said. “Let’s find Mom.”

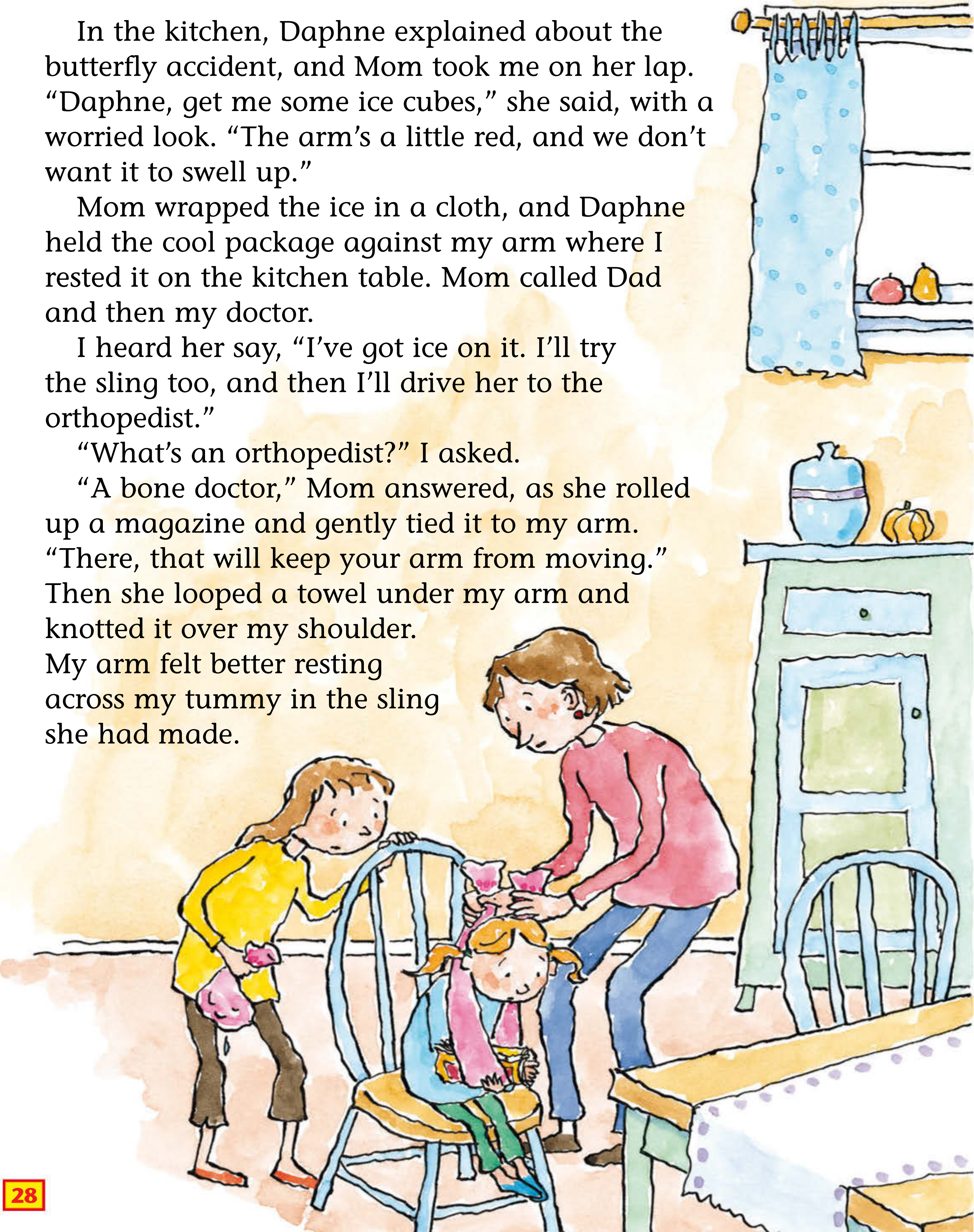
In the kitchen, Daphne explained about the butterfly accident, and Mom took me on her lap. “Daphne, get me some ice cubes,” she said, with a worried look. “The arm’s a little red, and we don’t want it to swell up.”

Mom wrapped the ice in a cloth, and Daphne held the cool package against my arm where I rested it on the kitchen table. Mom called Dad and then my doctor.

I heard her say, “I’ve got ice on it. I’ll try the sling too, and then I’ll drive her to the orthopedist.”

“What’s an orthopedist?” I asked.

“A bone doctor,” Mom answered, as she rolled up a magazine and gently tied it to my arm. “There, that will keep your arm from moving.” Then she looped a towel under my arm and knotted it over my shoulder. My arm felt better resting across my tummy in the sling she had made.

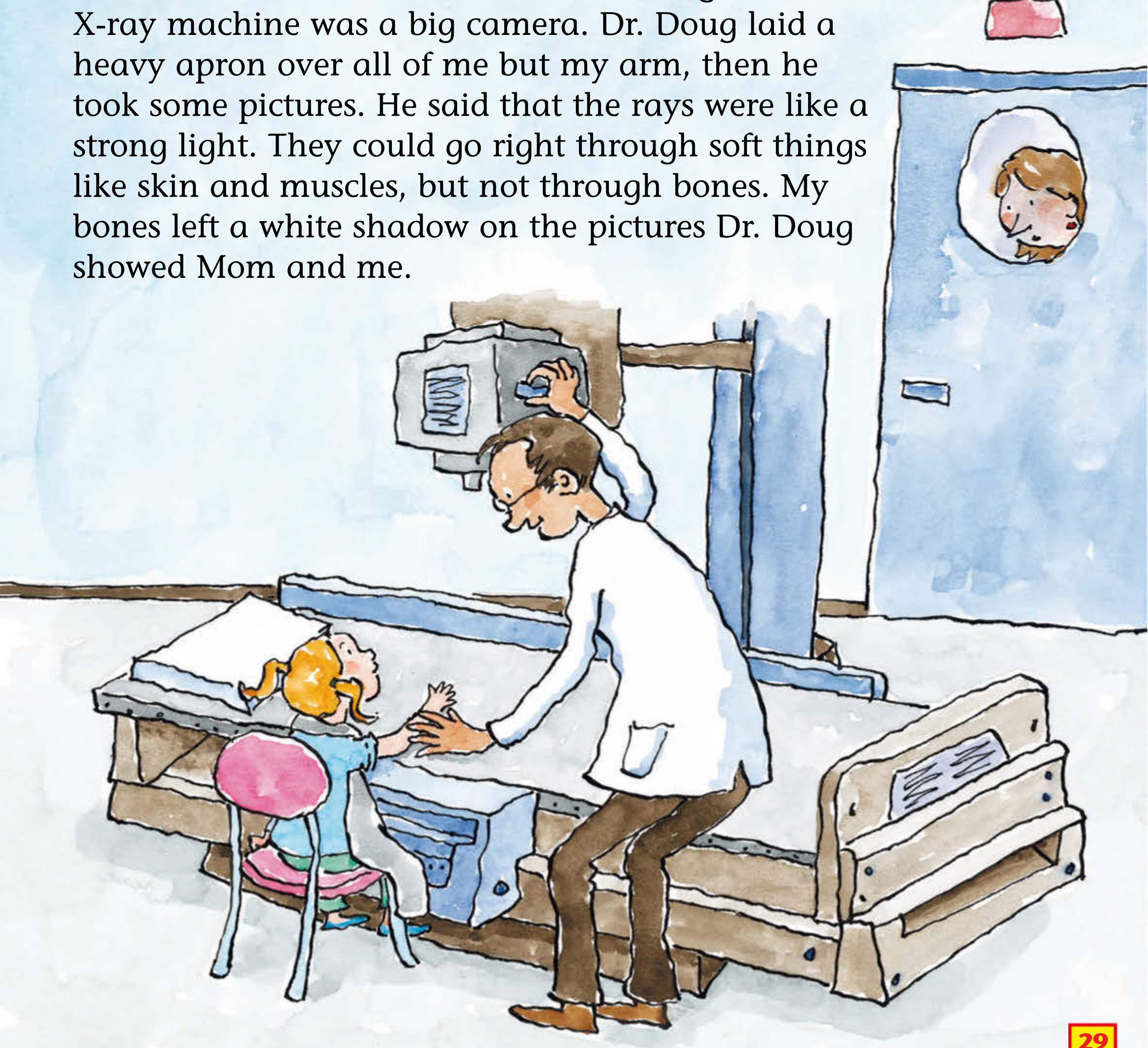


We drove to the orthopedist's office, where Mom said, "Ella, meet Dr. Doug. He fixes broken bones."

"Do you feel pain anywhere?" Dr. Doug asked, pressing on my wrist.

I shook my head. My arm didn't really feel good, but the ice and the sling had made it hurt less.

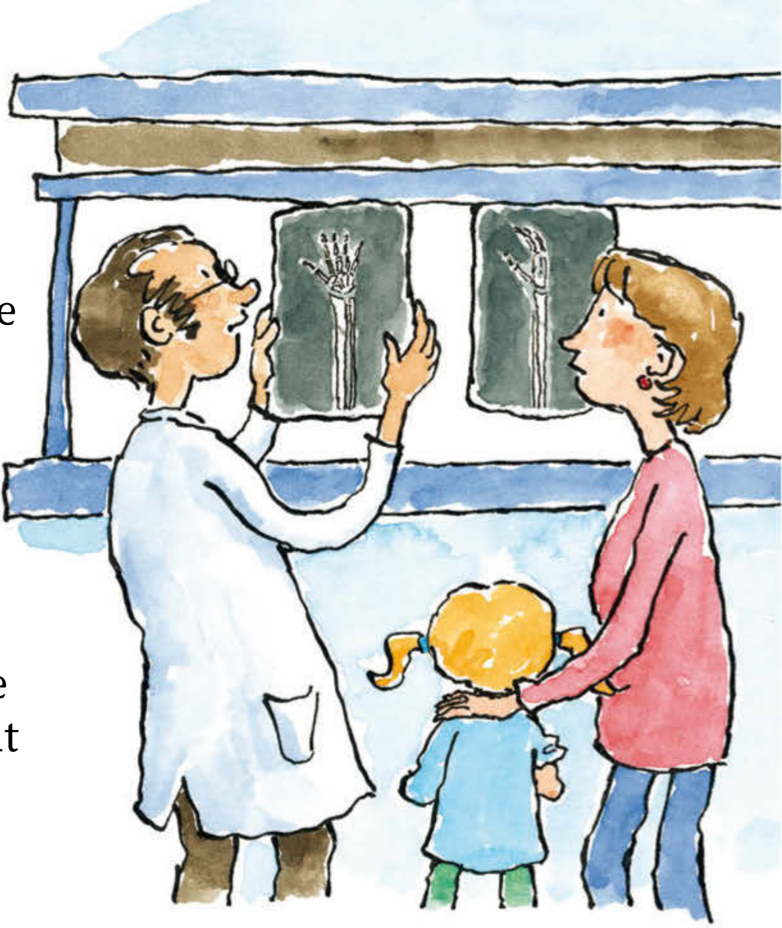
"We'll start with X-rays. If the bone is broken, it'll show us where the break is," Dr. Doug said. The X-ray machine was a big camera. Dr. Doug laid a heavy apron over all of me but my arm, then he took some pictures. He said that the rays were like a strong light. They could go right through soft things like skin and muscles, but not through bones. My bones left a white shadow on the pictures Dr. Doug showed Mom and me.

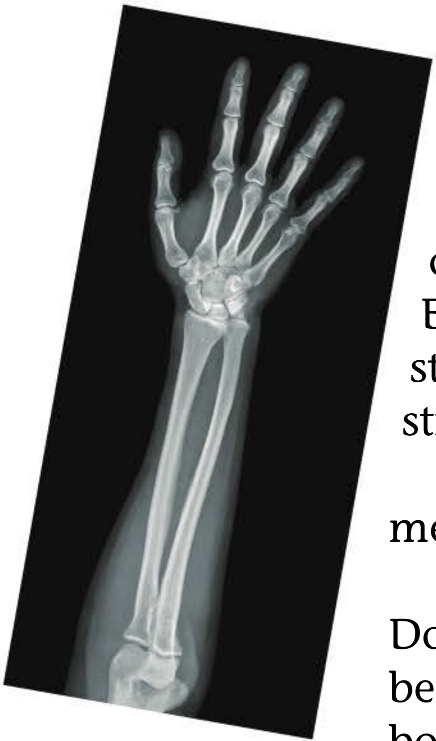


“Just as I thought,” he said. “A simple fracture of the radius and ulna, the two bones between your elbow and your wrist. That means the bones are broken but haven’t moved out of place.”

“Do you have to glue them back together?” I asked.

“No, your bones contain everything they need to mend the break by themselves. All we need to do is keep them straight and still while they heal.”



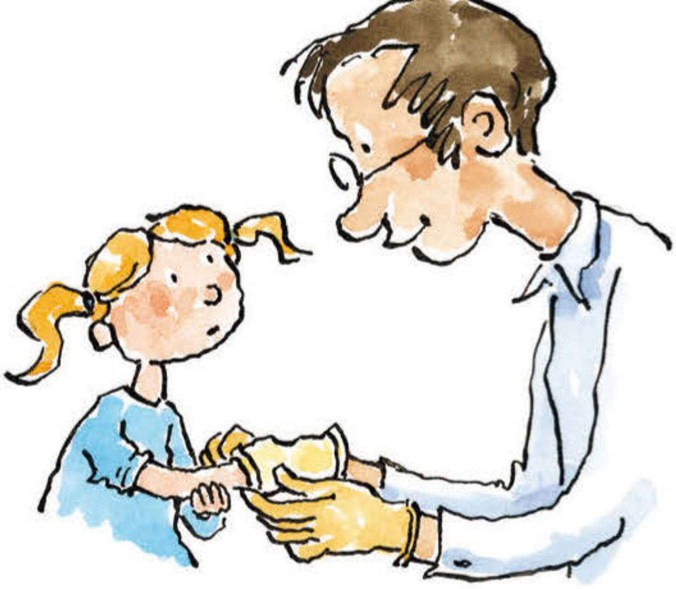


Bones block X-rays; they leave a white shadow. Soft skin and muscles let some rays pass through; they look gray. Air lets all the rays through; it looks black. You can see these bones are nice and unbroken.

While the nurse got things ready, the doctor told me about bones. “They’re full of tiny air holes, so they’re lightweight. But ounce for ounce, bones are as strong as steel. Minerals like calcium help make them strong.”

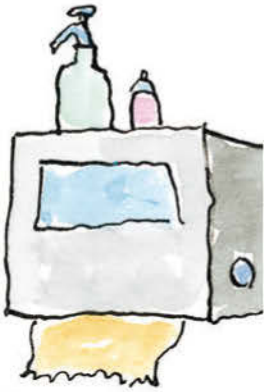
Mom said something about yogurt giving me calcium. Good thing I eat lots of yogurt!

“Your bone bleeds when it breaks,” Dr. Doug explained. “Then a blood clot forms between the two broken ends of the bone. New bone cells build a thick patch called a callus there to bind the ends together. As time goes on, the bone heals and returns to its normal shape. Your arm will be as good as new, but it does take time. Maybe three months.”



He slid a loose, socklike material over my arm, then wrapped everything with thick, puffy cotton.

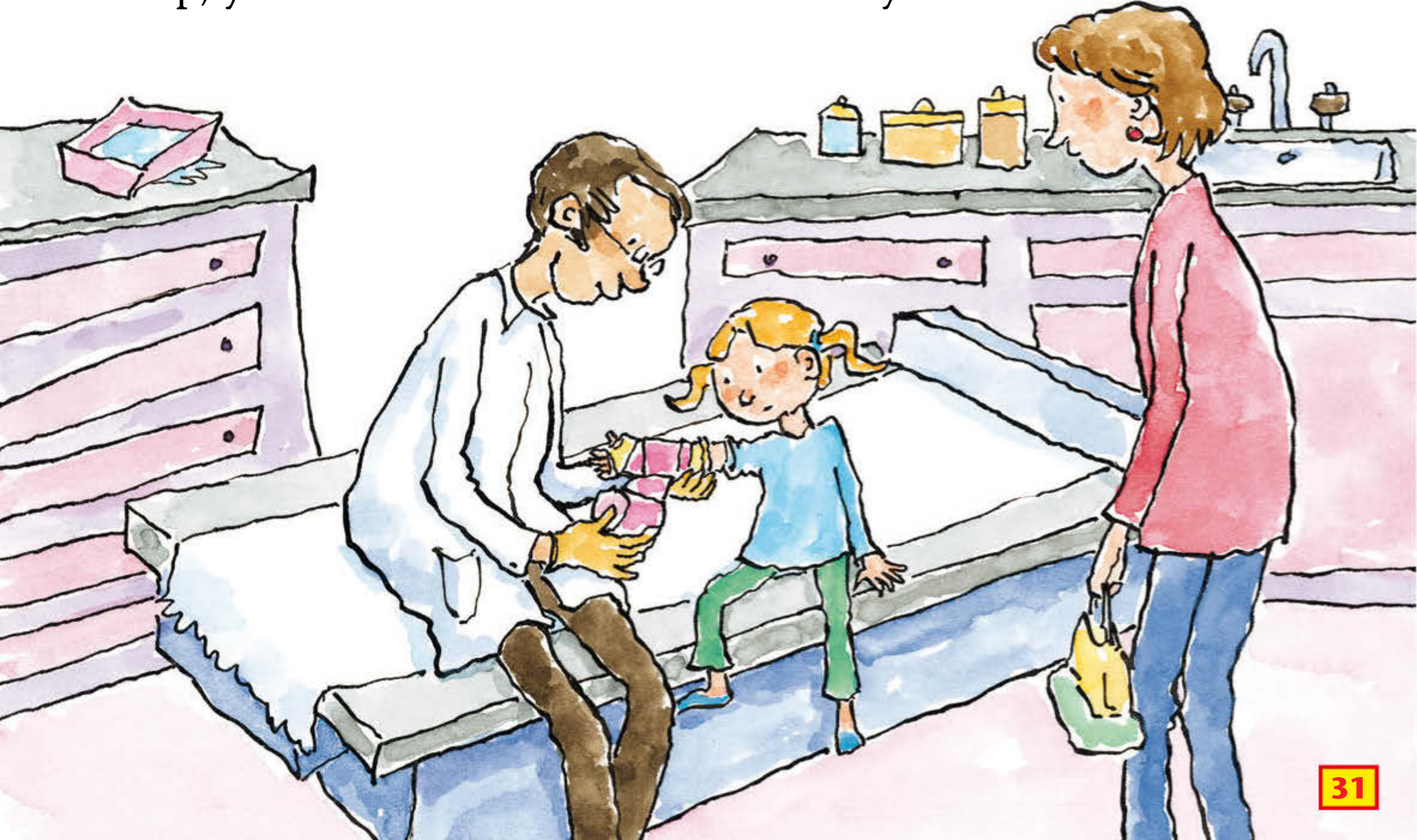
"This protects the bone," said Dr. Doug, "and helps hold it in place while it heals. Now for the fiberglass cast. Is pink OK?"

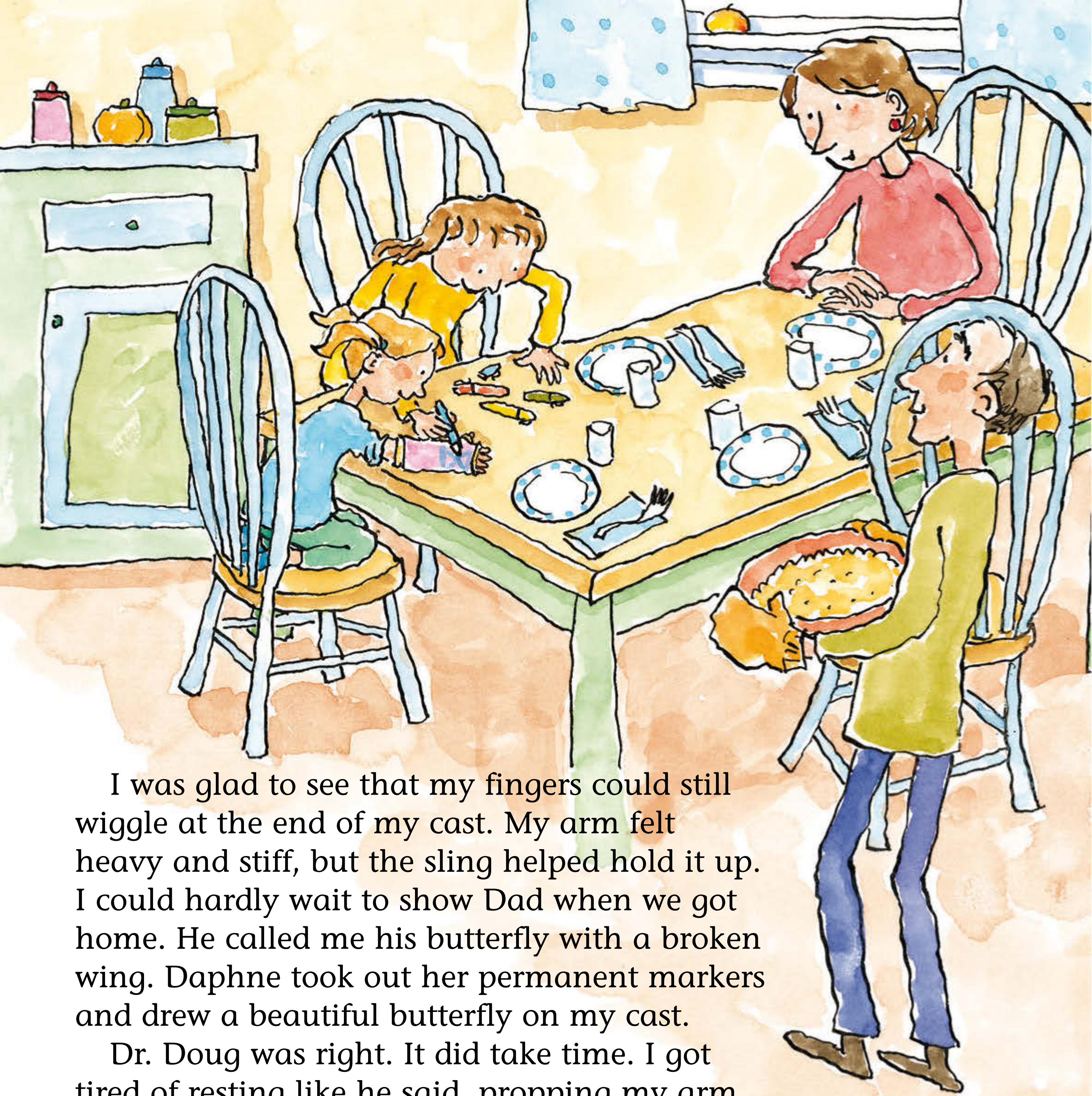


I nodded. He dipped the fiberglass in water, then wrapped it firmly around my arm like a piece of cloth.

"It's getting warm," I said in surprise.

"That's the chemical reaction. It hardens the fiberglass in about 15 minutes," Dr. Doug said. "But it won't be completely hard for a day or two. So be careful! Keep it out of your bath water. If it gets a little damp, you can blow it with a cool hair dryer."





I was glad to see that my fingers could still wiggle at the end of my cast. My arm felt heavy and stiff, but the sling helped hold it up. I could hardly wait to show Dad when we got home. He called me his butterfly with a broken wing. Daphne took out her permanent markers and drew a beautiful butterfly on my cast.

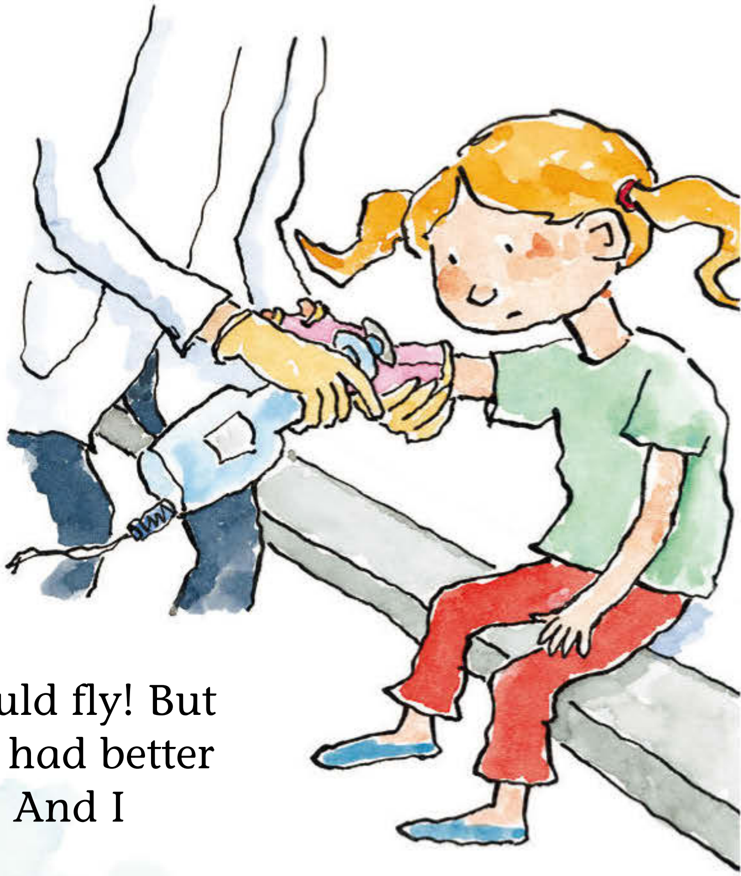
Dr. Doug was right. It did take time. I got tired of resting like he said, propping my arm up above my heart so my arm wouldn't swell. I got tired of waiting to be able to hang from the monkey bars again. Sometimes my arm got itchy where I couldn't scratch it, and Mom blew cool air under the cast with the hair dryer.

Finally the bone was mended. I was a little nervous the day Dr. Doug turned on his noisy electric saw.

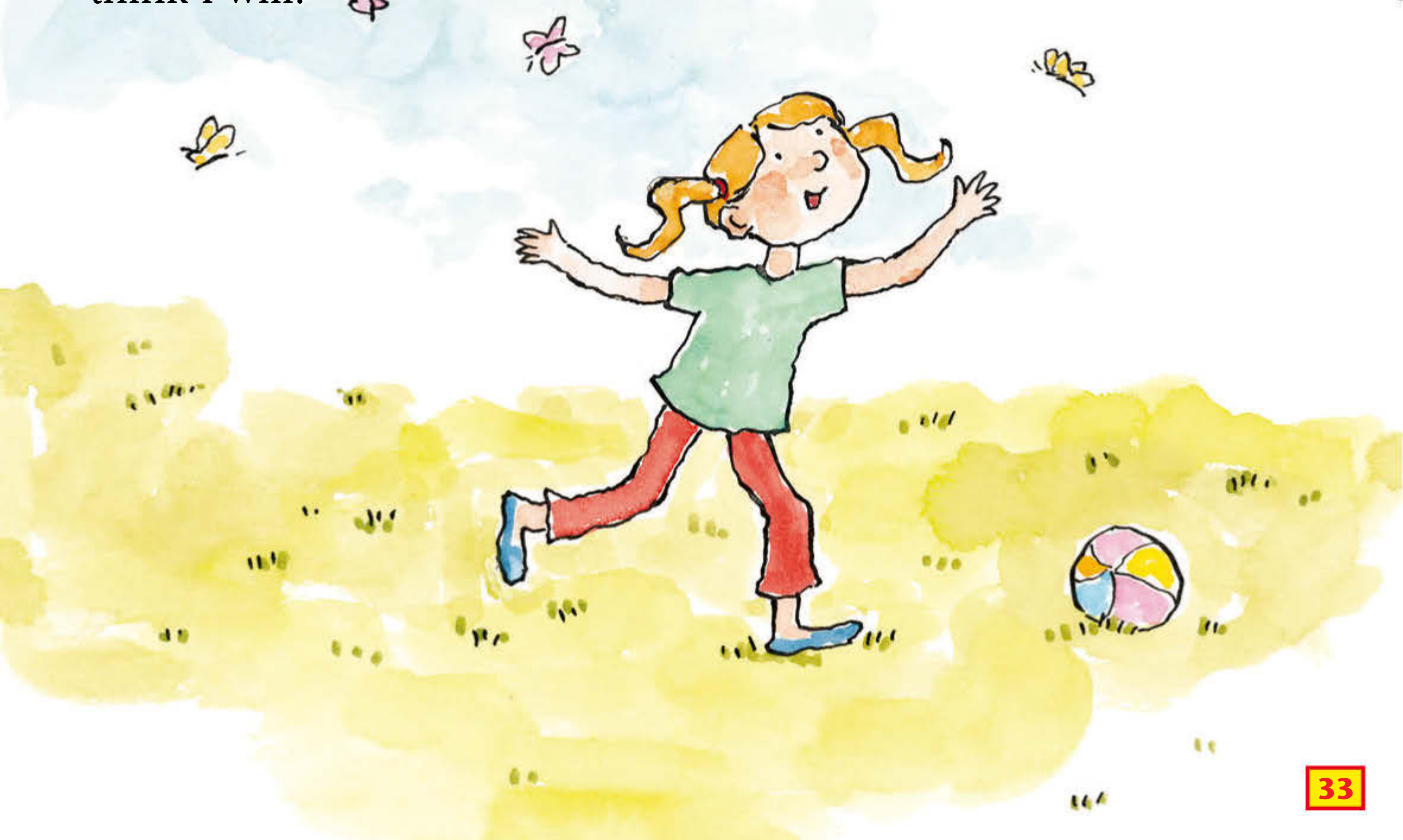
“See,” he said, as the round blade wiggled its little teeth against his finger. “It won’t cut skin.”

So I relaxed and watched the saw buzz through the fiberglass.

Mom laughed as my pale arm came out of the cast and the cotton wrappings. “Just like a butterfly coming out of a chrysalis,” she said.

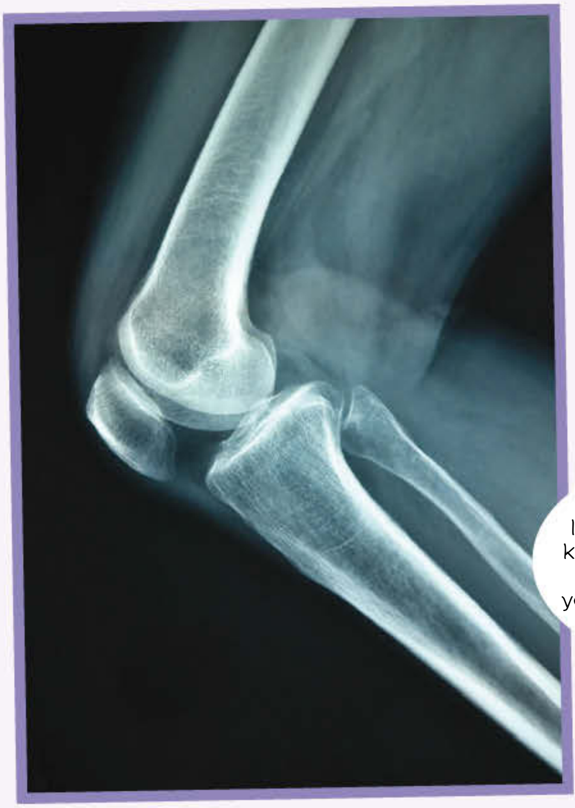


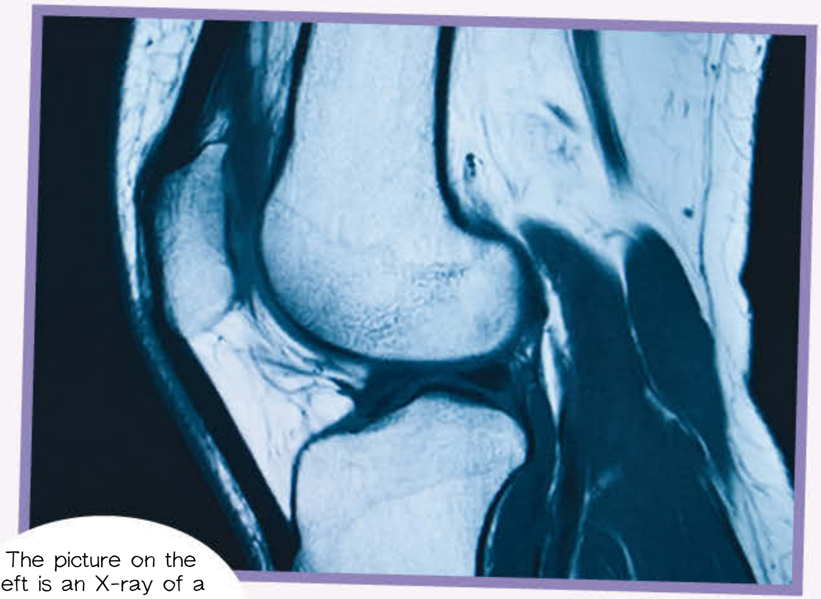
With the cast off, I felt like I could fly! But Dad said he thought his butterfly had better hold tight to the swing next time. And I think I will.



A Closer Look

X-rays are useful for checking bones, but sometimes doctors need to look at the body's soft inner parts, such as muscles. To do that, they use a machine called an MRI. An MRI uses magnets to make pictures of the body's insides.





The picture on the left is an X-ray of a knee. The one on the right is an MRI. Can you see how they are different?

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age 6
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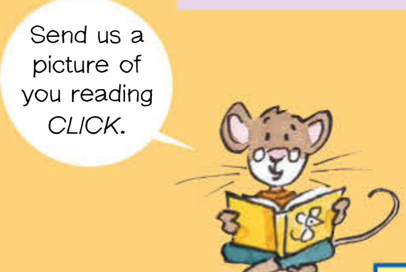
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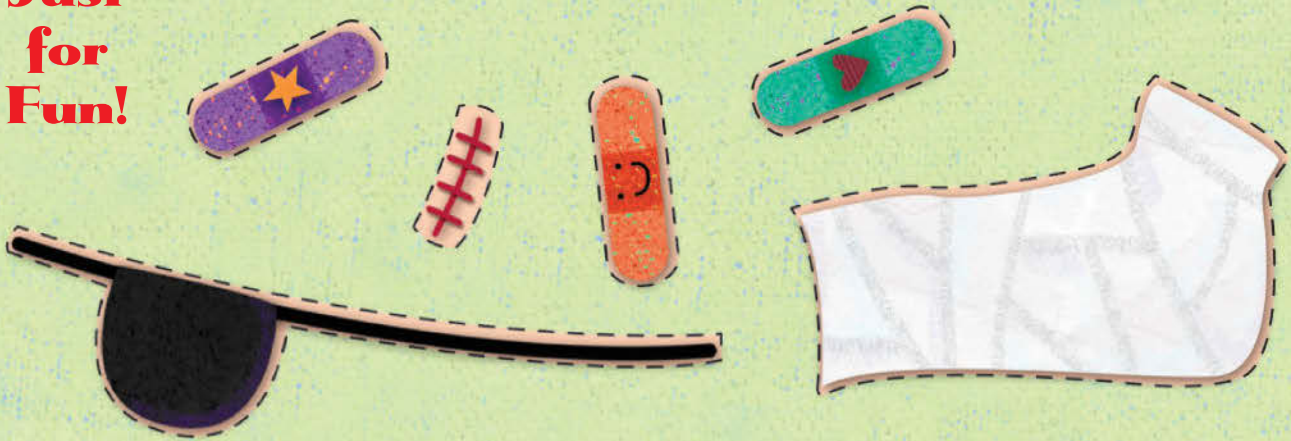
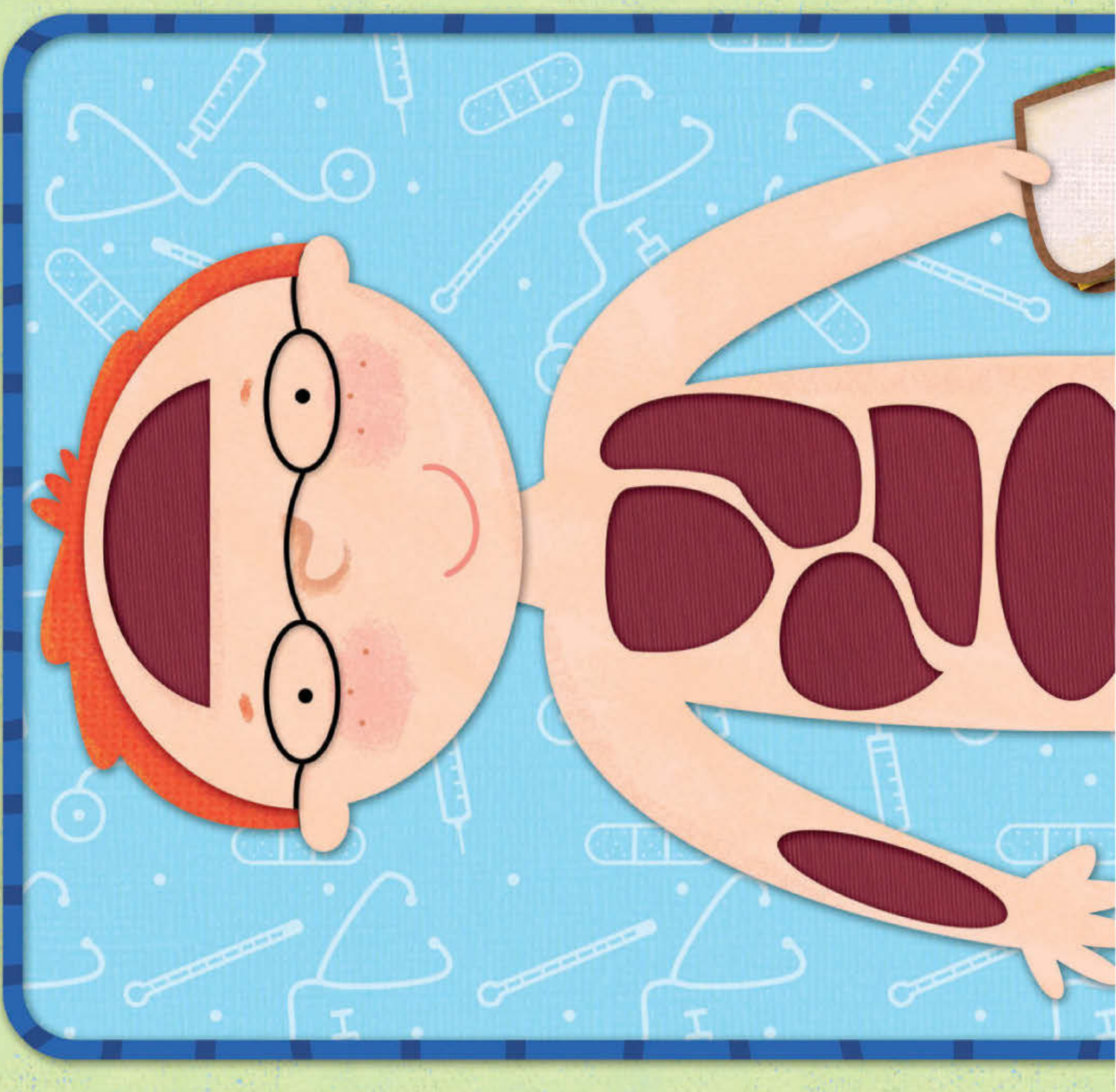


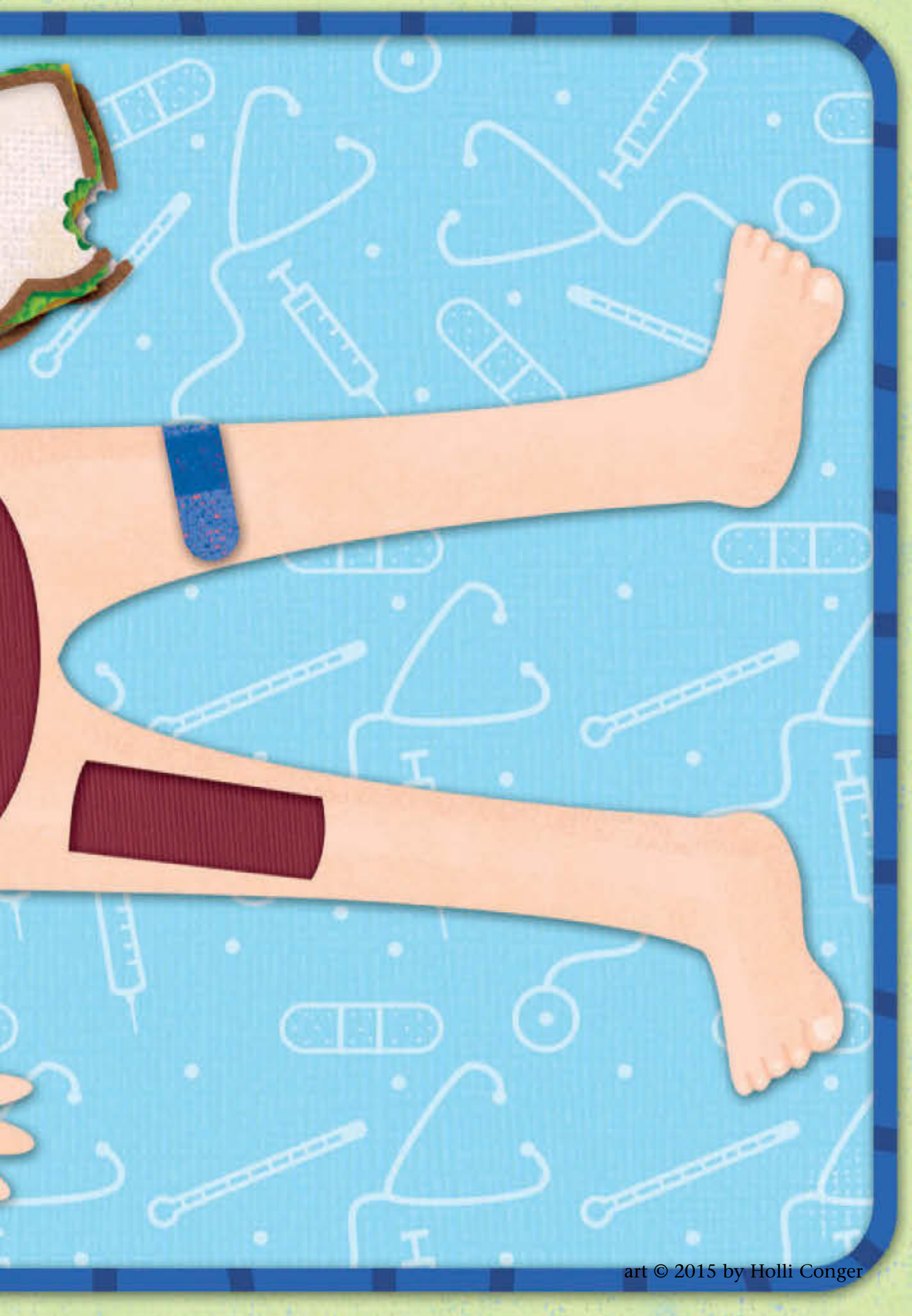


Operation

art by Holli Conger

Doctor, doctor, it's time to operate. Do you know what goes where?

Cut out the big operating table with the body along the thick blue line, then cut out the body parts along the dashed lines. Now tape or glue each part where it belongs in or on the body.



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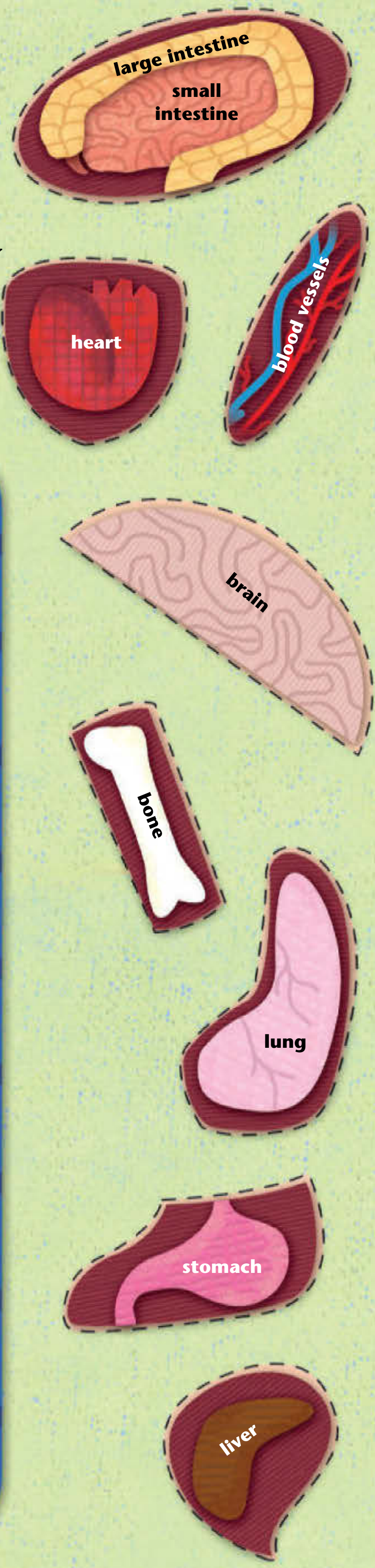
large intestine
small intestine
heart
blood vessels
brain
bone
lung
stomach
liver

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Beatrice Black Bear

The World's Healthiest (and Well-Rested) Photographer

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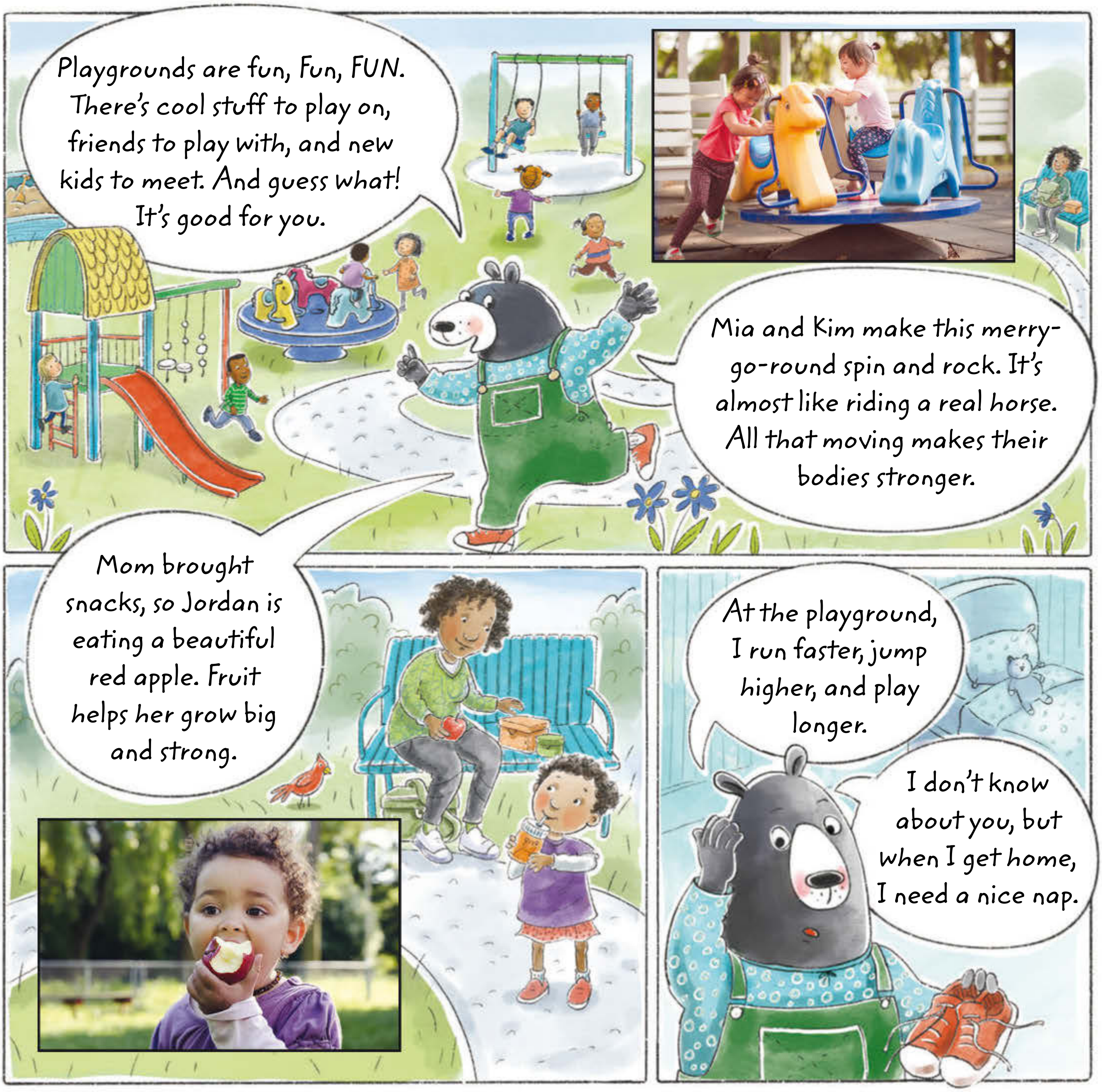
Playgrounds are fun, Fun, FUN. There's cool stuff to play on, friends to play with, and new kids to meet. And guess what! It's good for you.
Mia and Kim make this merry-go-round spin and rock. It's almost like riding a real horse. All that moving makes their bodies stronger.
Mom brought snacks, so Jordan is eating a beautiful red apple. Fruit helps her grow big and strong.
At the playground, I run faster, jump higher, and play longer.
I don't know about you, but when I get home, I need a nice nap.